REGIONAL QUARTERS RENTAL SURVEY

COVERING
GOVERNMENT-FURNISHED QUARTERS
LOCATED IN

OREGON/WASHINGTON SURVEY REGION

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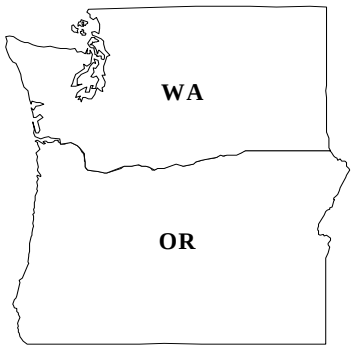

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I. SURVEY BACKGROUND

The Quarters Management and Information Systems (QMIS) Office coordinated a contractor-conducted field survey of the private rental housing market in the states of Idaho, Oregon, and Washington, from January 2003 through March 2003. This survey was undertaken as specified in the Office of Management and Budget (OMB) Circular No. A-45, and the U.S. Department of the Interior's Departmental Quarters Handbook. OMB Circular A-45 provides for reconfirmation of the market based rental rates at least once every five years, or sooner, if conditions warrant.

The collection and analysis of rental housing data were accomplished employing methods similar to those used in previous surveys. Automated and manual analytical procedures were used to establish base rental rates for houses (including plexes), apartments, mobile homes, and trailer spaces. Rental rates for cabins were established based upon their comparability with 1-bedroom houses. Rental rates for temporary housing and travel trailers were established based upon their comparability with mobile homes. Rental rates for dormitories, bunkhouses and transient quarters were established by extending the principle of comparability, as provided for in OMB Circular A-45.

The objective of regional surveys, as set forth in OMB Circular No. A-45, is to develop reasonable rental rates based upon the ". . . typical rental rates for comparable private housing in the general area in which the Government quarters are located . . .." The policy set forth in OMB Circular A-45 is as follows:

> Rental rates and charges for Government quarters and related facilities will be based upon their "reasonable value...to the employee...in the circumstances under which the quarters and facilities are provided, occupied, or made available."...reasonable value to the employee or other occupant is determined by the rule of equivalence; namely, that charges for rent and related facilities should be set at levels equal to those prevailing for comparable private housing located in the same area, when practicable...

The regional survey method uses regression analysis techniques to establish a base rental rate for a given type of quarters that reflects the typical rate for that type of housing in the survey area. Regression analysis allows the Quarters Operations Office to establish adjustments that reflect: (1) the contributory value (+ or -) of housing features that the private rental market indicates are significant; and (2) relevant social and economic factors that are manifested in the rent levels of individual communities.

Because regression analysis permits assessment of (and adjustment for) different locations, as measured by market rents, several localities or states can be surveyed at a time to minimize data collection costs and the rates can be individualized for communities significantly at variance with the regional rent pattern.

The resulting product (finalized rental rates), when derived from carefully applied automated statistical analysis, provides a logical and equitable base rental rate structure supported by the market rental rate pattern of the region and the community.

II. INVENTORY OF GOVERNMENT-FURNISHED QUARTERS

This survey was initiated with an inventory of Government-furnished quarters (GFQ) managed by the agencies and bureaus that participate in the QMIS program.

Most agencies and bureaus are now using the QMIS database software to manage their inventories. The Quarters Operations Office in Denver developed this software. The database software allows an installation or region to maintain its own housing inventory. Rents can be calculated in just minutes, even for hundreds of quarters. This decentralized system provides local control of the housing inventory. As always, the key to accurate rents is accurate, up-to-date inventory information. Software with the new housing rental rate formulas and new utility rates is distributed from Denver whenever new regional surveys are conducted or at CPI time. If you do not receive new CPI software by approximately January 1st of each year, please contact the Quarters Operations Office (303-969-7240). It is important that all agencies and bureaus submit (on diskettes or via electronic mail) updates to their housing inventories at least once a year. This information is used to determine the communities and characteristics to be sampled in new Regional Surveys. The information is also used for various general management reports.

III. CONTRACTING FOR THE PRIVATE RENTAL SURVEY

A. DETERMINATION OF THE COMMUNITIES TO BE SURVEYED

Selection of the communities to be surveyed was initiated with a review of the nearest established communities identified in the quarters inventory process. Their geographic locations and populations were determined to enable selection of established communities nearest to concentrations of Government housing.

Inclusion of these communities enables a comparison of the community rental rate structure with that of the survey region. This permits a ready determination of whether the local or the regional rental rate structure should be utilized to establish the GFQ base rents. A complete discussion of this process is contained in section IV of this report.

The communities surveyed represented broad geographic and population ranges. The largest community surveyed, Spokane, WA, had a 2000 population of 195,629. The smallest community, Oroville, WA, had a population of 1,653. A list of the surveyed communities appears as Table 1. In accordance with OMB Circular A-45, communities with 2000 census populations below 1,500 were not analyzed.

TABLE 1 COMMUNITIES SURVEYED

STATE AND COMMUNITY	2000 CENSUS POPULATION
IDAHO	
Nampa, ID	51,867
OREGON	
Astoria, OR	9,813
Baker City, OR	9,860
Bandon, OR	2,833
Bend, OR	52,029
Burns, OR	3,064
Corvallis, OR	49,322
Enterprise, OR	1,895
Estacada, OR	2,371
Eugene, OR	137,893
Florence, OR	7,263
Gladstone, OR	11,438
Gold Beach, OR	1,897
Grants Pass, OR	23,003
Hood River, OR	20,411
John Day, OR	1,821
Klamath Falls, OR	19,462
La Grande, OR	12,327
Lakeview, OR	2,474
Madras, OR	5,078
Myrtle Creek, OR	3,419
Myrtle Point, OR	2,451
Newport, OR	9,532
Oakridge, OR	3,148
Pendleton, OR	16,354
Prineville, OR	7,356
Redmond, OR	13,481
Reedsport, OR	4,378
Roseburg, OR	20,017
Sandy, OR	5,385
Shady Cove, OR	2,307

TABLE 1 COMMUNITIES SURVEYED (Continued)

STATE AND COMMUNITY	2000 CENSUS POPULATION
OREGON	
Springfield, OR	52,864
Sweet Home, OR	8,016
Tillamock, OR	4,352
Umatilla, OR	4,978
White City, OR	5,466
WASHINGTON	
Aberdeen/Hoquiam, WA	16,461
Arlington, WA	11,713
Battle Ground, WA	9,296
Bellingham, WA	67,171
Chehalis, WA	7,057
Chelan, WA	3,522
Cheney, WA	8,832
Cle Elum, WA	1,755
Colville, WA	4,988
Davenport, WA	1,730
Eatonville, WA	2,012
Enumclaw, WA	11,116
Ephrata, WA	6,308
Forks, WA	3,120
Lakewood, WA	58,211
Leavenworth, WA	2,074
Longview, WA	34,660
Marysville, WA	25,315
Monroe, WA	13,795
Newport, WA	1,921
North Bend, WA	4,746
Okanogan/Omak, WA	2,484
Oroville, WA	1,653
Othello, WA	5,847
Pasco, WA	32,066

TABLE 1 COMMUNITIES SURVEYED (Continued)

STATE AND COMMUNITY	2000 CENSUS POPULATION
WASHINGTON	
Port Angeles, WA	18,397
Port Townsend, WA	8,334
Sedro-Woolley, WA	8,658
Shelton, WA	8,442
Spokane, WA	195,629
Toppenish, WA	8,946
Walla Walla, WA	29,686
White Salmon, WA	2,193
Woodland, WA	3,780
Yakima, WA	71,845

B. DETERMINATION OF THE HOUSING CLASSES TO BE SURVEYED

In order to determine which housing classes to survey, the inventory data for the agencies participating in the QMIS system were separated into housing classes shown in Table 2, below. Analysis of the data revealed the following numbers of units per housing class:

TABLE 2 GOVERNMENT-FURNISHED QUARTERS - (BY HOUSING CLASS)

Housing Class	# of Units	Avg Age	Age Range	Avg. SQFT	SQFT Range
Houses					
4+ Bedrooms	53	60	(12 – 126)	2,269	(900 – 4,175)
3 Bedrooms	518	46	(1 – 115)	1,700	(567 – 5,522)
2 Bedrooms	259	57	(6 – 145)	1,306	(400 – 3,200)
1 Bedroom	64	60	(15 – 93)	990	(384 – 3,180)
Apartments					
3+ Bedrooms	22	60	(46 – 63)	1,917	(1,240 – 2,498)
2 Bedrooms	33	36	(13 – 83)	714	(372 – 1,206)
1 Bedroom	35	48	(20 – 88)	767	(330 – 2,920)
Efficiency	33	37	(19 – 52)	329	(232 – 408)
Cabins	68	60	(8 – 85)	466	(180 – 1,718)
Mobile Homes					
4+ Bedrooms	10	15	(4 – 35)	1,804	(1,400 – 2,500)
3 Bedrooms	67	23	(2 – 38)	1,183	(665 – 2,944)
2 Bedrooms	35	25	(6 – 40)	840	(535 – 1,200)
1 Bedroom	9	30	(16 – 39)	596	(360 – 860)
Travel Trailers	26	22	(6 – 40)	300	(120 – 1,152)
Dormitories	221	42	(2 – 80)	1,598	(0 – 13,831)
Trailer Pads	202				
TOTAL UNITS	1,655				

NOTE: The above data was extracted from the latest integrated database stored by the Quarters Operations Office. Since the program is decentralized the data contained in this database is only what has been sent to our office by users in the field. The numbers above may not accurately reflect the actual number of quarters for this survey region.

As with other regional surveys, the contractor was directed to survey only those housing classes for which a representative sample could be readily obtained in the private rental market. Thus, comparables were not obtained for cabins or lookouts, temporary housing, travel trailers, bunkhouses/dormitories, transient quarters or tents.

Rental rates for cabins were established by using the average rental rate for one-bedroom, single-family houses as the basis of comparison. Additional adjustments, that reflect the absence of certain standard housing features in some cabins, have been included for use when appropriate.

Since temporary housing and travel trailers (mobile home-like structures containing less than 256 square feet of gross living area) are most structurally similar to mobile homes, the rental charges for these housing classes are based upon the analysis of mobile home market rental comparables.

Since comparable bunkhouse or dormitory housing does not exist in most communities, the Quarters Operations Office is unable to obtain sufficient market data to provide a satisfactory statistical base. Consequently, rental rates for bunkhouses and dormitories have been established using an extension of the Principle of Comparability, as permitted in OMB Circular A-45. Similarly, the rental charge for transient quarters has been established in conjunction with the dormitory rate structure.

OMB Circular A-45, revised October 20, 1993, excludes tents from the definition of Government-furnished quarters. Therefore, rental charges have not been established (and should not be assessed) for tents which are used as employee housing.

Four housing classes (houses/plexes, apartments, mobile homes and trailer spaces) were ultimately selected for field survey and computer analysis. The contractor was instructed to select comparables, built to Housing and Urban Development (HUD) minimum housing standards, wherever possible. The number of observations obtained for each housing class in each community surveyed varied depending upon the number of nearby Government quarters of that class. The inventory data for each of the housing classes was analyzed to determine frequencies and age and size ranges for major construction elements. The information in Table 2 was used to guide the contractor in the conduct of the survey.

C. HEATING FUELS AND UTILITY CHARGE SURVEY

To ensure reliability of the energy consumption estimates for housing where consumption is neither metered nor measured, this report uses a series of contractor-developed heating and cooling consumption tables for each general type of housing represented in the survey. The tables are based upon energy consumption studies that use a methodology meeting housing industry standards. The results reflect energy consumption for variously sized single-family houses (with and without basements), apartments, and mobile homes. A complete discussion of the energy consumption/cost methodology is contained in Section VI.

D. CONTRACTOR SELECTION

The National Business Center, Products and Services provided procurement support and project coordination for this Private Rental Survey. Reimbursement for survey expenses was underwritten by the agencies and bureaus that participate in the Quarters Management Program.

The private rental survey was completed by Delta-21 Resources Inc. of Oak Ridge, TN, during the months of January 2003 through March 2003. A total of 1,471 private rental housing comparables were sampled. In addition, electrical, heating fuel, utility, appliance, and other related service charges were collected in each of the communities surveyed. The private rental housing costs that were obtained reflected current rental costs and required no adjustment for time.

IV. REGIONAL SURVEY PRINCIPLES AND PROCEDURES

A. SURVEY PRINCIPLES

The purpose of a regional survey is to determine and establish reasonable quarters rents, through an analysis of the market rents of comparable private housing in established communities nearest to concentrations of Government housing. The process of arriving at the base rent of a structure is influenced by real estate appraisal principles, statistical limitations, and administrative considerations. Often there may be a conflict among these three interests, which necessitates a trade-off.

1. Real estate appraisal principles include matching comparables as closely as possible to the specific subject properties in physical characteristics and location, and adjusting in a logical direction for all significant differences.

2. Statistical principles involve: (a) trying to minimize the standard error of the estimate (unexplained variation); (b) getting a good match of characteristics between the properties analyzed and those the analysis is applied to; (c) obtaining a large and diverse sample; and (d) making adjustments for factors that are significant in explaining variation. Ideal samples may not always be available in the market; and the market search may be limited (like an appraisal) because of time and budget constraints.

3. Administrative considerations recognize that Government housing is usually not located in established communities, and that physical characteristics (such as in historical houses, one-room cabins, lookouts or dormitories) are difficult to match in the market. Government quarters are often found in areas influenced by tourism or boom/bust natural resource development that may produce unreasonable rents. Consistency and relative reasonableness, as well as time and budget constraints must also be taken into consideration.

4. While trade-offs among these three considerations may result in a less than ideal application of any one of the three principles, the goal is still to produce "reasonable" Monthly Base Rental Rates (MBRR) for quarters that are relatively consistent with the local market rents for similar housing, internally consistent and logical from one unit to another, and represent reasonable value to the employee.

B. MULTIPLE REGRESSION PROCEDURES USED IN RENTAL RATE COMPUTATIONS

There are several reasons for using the regional survey method to arrive at quarters rental rates. These include accuracy, consistency, fairness, cost effectiveness/economy, and the provision in OMB Circular A-45, that regional surveys are the preferred method.

Prior to the use of the regional survey method, quarters Monthly Base Rental Rates (MBRR's) were reset every five years by individually appraising each quarters unit. The appraisal process normally relied upon the use of a small number (2-4) of comparables for each subject Government quarters unit and made logical or market abstracted adjustments to each comparable. In many instances the same comparables were used to establish rental rates for several quarters. Thus the selection of comparables became critical. Individualized appraisals often led to inconsistencies among units in the same area. Many times different agencies, managing similar or identical housing units in the same area, had substantially different rents after analyzing the same rental market. Appraisers valuing several different units using separate sets of comparables and adjustments can also sometimes arrive at rents not logically related to one another. Finally, the appraisal process required a considerable amount of travel, and individualized writing, typing and editing of appraisal reports, which was expensive and very time consuming.

Alternatively, the regional survey method relies upon much larger samples of comparables. These are analyzed, statistically, to objectively determine those factors that are significant in explaining variations in the adjusted rent of each class of comparables. Each class of comparables (houses, apartments and mobile homes) is analyzed separately to determine which locations and physical characteristics are important in explaining the differences in rents among individual rental units and communities. The computer program independently and objectively determines the best set of characteristics (formula) to explain the rental pattern. This formula varies for each survey region and housing class.

The rental rates are based upon an analysis of regional data and local data. The rents in all surveyed communities for each housing class are tested for statistical significance. All significant negative location adjustments are applied to the quarters using that community as their nearest established community. **Positive location (community) adjustments are not applied; so Government housing units near high-rent communities are charged the typical rent for the region as a whole, rather than the typical rent for that high cost location.**

The statistical process used is called forward in-and-out, step-wise multiple regression analysis. It takes all of the variables considered and forms a matrix or grid showing how every variable is related to every other variable (cross-correlation matrix). In this phase of the analysis, significant inventory items relating to the dwelling structure are coded into the computer as variables to be tested for their impact, if any, on rent. The variable to be explained (in this case rent) is called the dependent variable, because its value is determined by that of the other (independent) variables.

In forward in-and-out step-wise multiple regression analysis, the independent variable that explains the most variation in the dependent variable (rent) is selected first by the computer and entered as Step 1. The remaining variation is then recomputed, and the independent variable that explains the largest portion of the remaining variation is selected by the computer and entered as Step 2. As each new variable is added, the

coefficients of all the previously entered variables are recomputed to take into account relationships among the independent variables. If a previously entered variable no longer meets the test of significance, it is removed.

As this procedure uses the variation squared, it is highly sensitive to cases with extreme variations from the norm. Since the purpose of a regional survey is to find the typical rent for housing with certain characteristics, it is useful (and mandatory) to cull comparables with unusually high or low rents that are apparently unrelated to their characteristics. Such non-conforming rentals tend to obscure the typical pattern. To accomplish this culling, the following steps are normally taken.

Step 1. A listing of all the comparables is checked to see that the program has proper decodes, that no rental has been entered twice, and that the data is complete for each variable to be tested. The range for each rent class is also checked.

Step 2. Regression Run 1 (square foot base formula): The purified data base is analyzed for the best fit of adjusted rent versus square feet and the logarithm of square feet. This comparison is undertaken because square footage in buildings is generally the variable that explains the most variation of adjusted rent. It is also a universal variable (one that applies to all cases) and a continuous variable (one that changes in many small increments).

Step 3. A listing is produced which shows by community the rent/predicted rent ratio of each private rental sample. The predicted rent is one computed using the square foot base formula derived in step 2. The purpose of this listing is to screen out individual rentals whose ratios are far out of line relative to other rental comparables in the same community.

Step 4. A scattergram of rentals for each class, showing adjusted rent by square feet, is produced to visually display the data. These scattergrams, and the listings produced in Step 3, above, are used to remove samples with unusually high or low rents in each size grouping. A separate variable for each of the remaining communities is then entered into the next step, the full regression analysis, to see if it has a statistically significant location adjustment after other adjustments have been made. This run and a crosstab run of physical features allows for selection of other variables that are significantly represented and widely (geographically) distributed. These variables are turned into dummy (yes/no) and combination variables. Continuous and discrete variables are entered as simple variables, logarithmic transformations, and in logical combinations.

Step 5. (First Full Regression Run). The screened samples for each housing class to be analyzed, along with the variables to be tested, are analyzed to find coefficients for the significant variables. The results are checked for logic and cross-correlation; normally only one form of a variable is allowed to stay in the equation. Variables with illogical results are checked to find reasons for such deviation from expected results. Such variables are normally dropped from subsequent regression runs. Sometimes the samples containing such variables are culled; however, that action (culling samples) is uncommon.

Step 6. (Other Full Regression Runs). The full regression analysis is rerun without the illogical variables and/or dropped cases. If the end results look reasonable, the coefficients determined by regression analysis are used to compute Monthly Base Rental Rates (MBRR's) for individual Government-furnished quarters.

Step 7. (Predicted Rent Tables). The coefficients of each satisfactory regression run are put into a computer program which produces a table of predicted quarters MBRR's. The base values and all possible combinations of adjustments are reviewed to ensure the results are reliable for the full range of values. If not, the cause of the problem is diagnosed and corrected, and the regression analysis is rerun, producing a revised set of coefficients. Then Step 6 is repeated, and a new set of rent tables is produced.

V. ESTABLISHMENT OF MONTHLY BASE RENTAL RATES (MBRR)

A. USE OF BASE RENT CHARTS

Although rental computations have been automated, producing Monthly Base Rental Rates (MBRR's) and final Net Rents for most quarters, housing managers should understand the methodology used in determining the rental rates. Therefore, a set of charts has been prepared to allow the manual computation of the MBRR's for each class of rental housing. The charts have been constructed as size/age tables for the three major categories of housing (houses, apartments and mobile homes). By knowing the gross square feet of the livable area (size), the age, and the housing class of a building being used as quarters, one can determine the base rent from the proper table. The charts also contain columns and/or footnotes of rent adjustments, which modify the rent from the size/age table to produce a MBRR for an individual quarters unit. **The value of one refrigerator and one stove is included in the rents listed in Tables 3a-d, 4a-d and 5a-c.** Therefore, if the Government does not provide a refrigerator or a range in the quarters, the value of each non-provided appliance should be subtracted from the monthly rent. The current values of a refrigerator and range are shown in Table 18 of this report, and may be adjusted annually by the Quarters Operations Office to reflect changes in the Consumer Price Index (CPI) which may occur following the issuance of this report. In selecting the appropriate rent table, it is important to remember that the **design of the quarters, not its use, determines its category.** Thus, a house or an apartment unit **designed** to be occupied by an individual or a family, but which is actually used to house unrelated individuals, would be valued by the category for which it was designed to be used, rather than as a bunkhouse/dormitory. Where, however, a structure is not designed for occupancy by an individual, or family, or has been substantially modified to house individuals on a dormitory basis, it would be appropriate to apply bunkhouse/dormitory rates. Thus, an unmodified three-bedroom house with a **planned occupancy** of six unrelated individuals (normally two persons per bedroom) would have a rental rate determined by calculating the rental rate for a three-bedroom house and then dividing that rate by six. This rate would change if the number of **planned** occupants changed. If the house were later **structurally modified** to be used as a bunkhouse/dormitory, the rate then would be the dormitory rate.

Based upon information provided by the contractor, deductions from the monthly contract rental rate of each rental sample were made for the contributory costs of utilities, appliances, furnishings and services, provided and included in the contract rent. No deductions were made for central air conditioners, refrigerators or ranges; however, if a refrigerator or range was missing, the value was added to the adjusted rent. Central air conditioners are valued at their contributory value, if any. The resulting adjusted monthly contract rental rate represents the contributory value of the dwelling structure equipped with a refrigerator and a range.

The establishment of final monthly quarters rental charges for houses, apartments, mobile homes and cabins/lookouts requires the addition of charges for Government-provided utilities, services, appliances and furnishings. Conversely, **deductions** are required for the values of ranges and refrigerators when they are not provided by the Government.

There are a total of eleven rental rate charts: four charts for single-family housing, four charts for apartments, and three charts for mobile homes. Instructions for computing rental rates for cabins, bunkhouses and dormitories, transient quarters and trailer spaces are found in Sections V.E, V.F, V.G and V.H, respectively. Because OMB Circular A-45 excludes tents from the definition of "rental quarters," there is no charge for the provision of tents.

The use of the charts is fairly simple. First, find the chart for the category into which the GFQ fits. Next, round the square feet **down** to the nearest hundreds of square feet. Thus, if a unit has 980 square feet, the row labeled 900 SQFT would be used. Then the age should be rounded **up** to the nearest age increment. If the dwelling at issue was built in 1979, its age would be computed as 2003 (the current year) minus 1979 (the year built). Thus, in this instance, the unit is 2003 - 1979 = 24 years old; and the column headed by "25 YEARS OLD" should then be followed down to the 900 SQFT row to obtain the size/age adjusted rent.

The rent charts also have various location adjustments, as well as adjustments for physical features such as the number of bathrooms, the type of garage facilities, the condition of the housing, etc. These should be subtracted from, or added to, the size/age adjusted rent, as specified, to determine the MBRR.

When computing the final biweekly rent (net rent) to be paid, the MBRR must be adjusted to include the value of Government-provided related facilities (utilities, appliances, furnishings and services); and the administrative adjustments prescribed in OMB Circular A-45. Use Form DI 1880, Rent Computation Schedule, or similar form as may be used by agencies other than DOI.

Where a dwelling is larger than the highest square footage in the chart pertinent to that unit, use the size/age rent and adjustments of the bottom (largest SQFT) row. This may eliminate the need for some administrative adjustments due to excess size of the housing. If a dwelling is smaller than the smallest square footage, use the lowest square footage listed on the chart.

The rent for a dwelling with more than 4 bedrooms (3 bedrooms for apartments and mobile homes) is calculated as if the unit had 4 bedrooms (3 bedrooms for apartments and mobile homes). In addition, the carport charge is the same regardless of the size of the carport; and the fireplace charge is the same for one or more fireplaces. For rental calculation purposes a "cap" of 3 bathrooms applies. Therefore, assume 3 bathrooms when applying the bathrooms charge in the rent charts shown in tables 3a-d, 4a-d and 5a-c.

To assist in the calculation of quarters MBRR's, examples are provided in the following pages. While the rates appearing in the following tables should allow you to establish MBRR's for essentially all of your properties, we recognize that we might not have anticipated all situations and conditions. Therefore, housing managers should use professional discretion to set rates for truly unusual situations. In cases where you must use some other method to establish rates, please notify the National Business Center, Products &

Services, Quarters Operations Office via telephone **303-969-7240** or fax 303-969-7173. You should explain the conditions, the rate used, and your reasoning so that we may anticipate such circumstances in the future. You should retain the documentation for such actions in your files.

B. SINGLE FAMILY HOUSING

For single-family detached houses, including plexed dwellings and townhouses, use the rental chart which appropriately describes the housing class and the number of bedrooms of the subject quarters. The charts for houses are in tables 3a through 3d.

Assume for example, a 3-bedroom, 1 1/2-bath house, that was built in 1972, and which has a 2-car garage, two fireplaces, a central refrigerated air conditioning system and 1,276 gross square feet of living space. The house, located near Burns, OR, is fair in both exterior and interior condition.

First, the chart for 3-bedroom, good condition, 1 bathroom, houses (Table 3b) should be located and used. These charts are baseline charts, which assume that each house is in good condition inside and outside and has one full bathroom. Therefore, if the house is in good condition inside and outside and has one bathroom, no additional computations are needed. If there is a deviation from either good inside or outside condition or there are less or more bathrooms than one, then the computations must be changed as discussed below. In the first step, Table 3b is selected as the proper chart for 3-bedroom houses. Next, the size (gross finished floor space) should be rounded **down** to the nearest 100 square feet (from 1,276 to 1,200 sqft). Under the column headed "**SQFT**," the figure 1,200 should be located. Further adjustments will be taken from this row.

Finally, the appropriate age column should be selected. The house in this example is 2003 - 1972 = 31 years old. The age should be rounded **up** to the next highest age column, which, in this case, is the column headed "**35 YRS OLD**." Follow this column down to the 1,200 square feet row to obtain the size/age "Chart Rent" of $682.

The first adjustment is the extra bathroom charge. Follow the column headed "**PER EXTRA BATHROOM**" down to the 1,200 SQFT row to find a charge of $47 for a full extra bathroom. As the house in this example has only 1/2 of an extra bathroom, the adjustment is $47 x .5 (1/2 extra bathroom) = $23.50. Add $24 (rounded) to the rent.

The second and third adjustments are made for a fair exterior and a fair interior condition. Follow the column headed "**FAIR EXTERIOR/INTERIOR***" down to the 1,200 SQFT row. The amount reflects a deduction of $37 for a house with a fair exterior **and** a deduction of $37 for a house with a fair interior. Since both the exterior and interior are in fair condition, the total adjustment is $-74.

The fourth adjustment is for the central refrigerated air conditioning system. Follow the column headed AA/C (REF)≅ down to the 1,200 SQFT row. The amount reflects an addition of $40 for central refrigerated air conditioning.

The fifth adjustment is for a two-car garage. Follow the column headed "**GARAGE (PER CAR)**" down to the 1,200 SQFT row. $34 should be charged for each car the garage is designed to accommodate. Since the house in this example has a 2-car garage, multiply the amount shown for one car ($34) times 2 to reflect the value of a 2-car garage (2 x $34 = $68). Add $68 to the rent.

The sixth adjustment is made for the fireplace. Follow the column headed "**FIREPLACES**" down to the 1,200 SQFT row. The amount reflects an addition of $20 for one or more fireplaces. Add $20 to the rent for the fireplace.

The final adjustment is the community adjustment. The house in this example is located near Burns, OR. The notes beneath the table (see "**COMMUNITY ADJUSTMENTS**") reflect that Burns, OR receives an adjustment of -$292. As instructed, subtract $292 from the rent. Community adjustments are given only to communities in which the market rents are **lower** than the regional average level of rents. Communities not listed in the tables have rents, which are equal to or higher than the regional average rent and do not receive community adjustments.

In summary, the adjustments that produce the Monthly Base Rental Rate for the house used in this example are shown below.

Chart Rent (1,200 SQFT/35 yrs. old)	$682.00
Extra Bath Adjustment (.5 X $47)	+ 24.00
Fair Exterior Condition Adjustment	- 37.00
Fair Interior Condition Adjustment	- 37.00
Central Refrigerated Air Conditioning Adjustment	+ 40.00
Garage Adjustment (Per Car X $34)	+ 68.00
Fireplace Adjustment	+ 20.00
Community Adjustment (Burns, OR)	- 292.00
Monthly Base Rent	$468.00

TABLE 3a MONTHLY BASE RENT CHART - GOOD CONDITION, 4 BDR, 1 BATH, HOUSES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	GAR-AGE PER (CAR)	PLEX	A/C (REF)	FIRE-PLACES
700	$691	$686	$681	$676	$671	$666	$656	$+27	$+24	$-37	$-42	$+34	$-63	$+23	$+20
800	$704	$699	$694	$689	$684	$679	$669	$+31	$+27	$-37	$-42	$+34	$-63	$+26	$+20
900	$717	$712	$707	$702	$697	$692	$682	$+35	$+31	$-37	$-42	$+34	$-63	$+30	$+20
1000	$729	$724	$719	$714	$709	$704	$694	$+39	$+34	$-37	$-42	$+34	$-63	$+33	$+20
1100	$740	$735	$730	$725	$720	$715	$705	$+43	$+37	$-37	$-42	$+34	$-63	$+36	$+20
1200	$750	$745	$740	$735	$730	$725	$715	$+47	$+41	$-37	$-42	$+34	$-63	$+40	$+20
1300	$760	$755	$750	$745	$740	$735	$725	$+51	$+44	$-37	$-42	$+34	$-63	$+43	$+20
1400	$770	$765	$760	$755	$750	$745	$735	$+55	$+48	$-37	$-42	$+34	$-63	$+46	$+20
1500	$779	$774	$769	$764	$759	$754	$744	$+59	$+51	$-37	$-42	$+34	$-63	$+50	$+20
1600	$788	$783	$778	$773	$768	$763	$753	$+62	$+54	$-37	$-42	$+34	$-63	$+53	$+20
1700	$796	$791	$786	$781	$776	$771	$761	$+66	$+58	$-37	$-42	$+34	$-63	$+56	$+20
1800	$804	$799	$794	$789	$784	$779	$769	$+70	$+61	$-37	$-42	$+34	$-63	$+59	$+20
1900	$812	$807	$802	$797	$792	$787	$777	$+74	$+65	$-37	$-42	$+34	$-63	$+63	$+20
2000	$820	$815	$810	$805	$800	$795	$785	$+78	$+68	$-37	$-42	$+34	$-63	$+66	$+20
2100	$828	$823	$818	$813	$808	$803	$793	$+82	$+71	$-37	$-42	$+34	$-63	$+69	$+20
2200	$835	$830	$825	$820	$815	$810	$800	$+86	$+75	$-37	$-42	$+34	$-63	$+73	$+20
2300	$842	$837	$832	$827	$822	$817	$807	$+90	$+78	$-37	$-42	$+34	$-63	$+76	$+20

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:
CARPORT: ADD $23 CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $20

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR	-$178;	BURNS, OR	-$292;	ENTERPRISE, OR	-$182;	GLADSTONE, OR	-$87;
GRANTS PASS, OR	-$22;	HERMISTON, OR	-$71;	JOHN DAY, OR	-$287;	KLAMATH FALLS, OR	-$70;
LA GRANDE, OR	-$108;	LAKEVIEW, OR	-$239;	MADRAS, OR	-$51;	MYRTLE CREEK, OR	-$133;
MYRTLE POINT, OR	-$171;	OAKRIDGE, OR	-$100;	PENDLETON, OR	-$72;	PRINEVILLE, OR	-$78;
REEDSPORT, OR	-$166;	SWEET HOME, OR	-$82;	TILLAMOCK, OR	-$119;	UMATILLA, OR	-$71;
ABERDEEN, WA	-$102;	BATTLE GROUND, WA	-$54;	CHEHALIS, WA	-$28;	CHELAN, WA	-$89;
COLVILLE, WA	-$118;	DAVENPORT, WA	-$295;	EPHRATA, WA	-$94;	FORKS, WA	-$156;
HOQUIAM, WA	-$102;	MONROE, WA	-$24;	NEWPORT, WA	-$233;	OKANOGAN, WA	-$205;
OMAK, WA	-$205;	PORT ANGELES, WA	-$67;	SHELTON, WA	-$22;	SOUTH BEND, WA	-$102;
SPOKANE, WA	-$44;	TOPPENISH, WA	-$253;	WALLA WALLA, WA	-$56;	WASHOUGAL, WA	-$54;
WHITE SALMON, WA	-$51;						

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 3b MONTHLY BASE RENT CHART - GOOD CONDITION, 3 BDR, 1 BATH, HOUSES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	GAR-AGE PER (CAR)	PLEX	A/C (REF)	FIRE-PLACES
500	$604	$599	$594	$589	$584	$579	$569	$+20	$+17	$-37	$-42	$+34	$-63	$+20	$+20
600	$622	$617	$612	$607	$602	$597	$587	$+23	$+20	$-37	$-42	$+34	$-63	$+20	$+20
700	$637	$632	$627	$622	$617	$612	$602	$+27	$+24	$-37	$-42	$+34	$-63	$+23	$+20
800	$651	$646	$641	$636	$631	$626	$616	$+31	$+27	$-37	$-42	$+34	$-63	$+26	$+20
900	$664	$659	$654	$649	$644	$639	$629	$+35	$+31	$-37	$-42	$+34	$-63	$+30	$+20
1000	$676	$671	$666	$661	$656	$651	$641	$+39	$+34	$-37	$-42	$+34	$-63	$+33	$+20
1100	$687	$682	$677	$672	$667	$662	$652	$+43	$+37	$-37	$-42	$+34	$-63	$+36	$+20
1200	$697	$692	$687	$682	$677	$672	$662	$+47	$+41	$-37	$-42	$+34	$-63	$+40	$+20
1300	$707	$702	$697	$692	$687	$682	$672	$+51	$+44	$-37	$-42	$+34	$-63	$+43	$+20
1400	$717	$712	$707	$702	$697	$692	$682	$+55	$+48	$-37	$-42	$+34	$-63	$+46	$+20
1500	$726	$721	$716	$711	$706	$701	$691	$+59	$+51	$-37	$-42	$+34	$-63	$+50	$+20
1600	$735	$730	$725	$720	$715	$710	$700	$+62	$+54	$-37	$-42	$+34	$-63	$+53	$+20
1700	$743	$738	$733	$728	$723	$718	$708	$+66	$+58	$-37	$-42	$+34	$-63	$+56	$+20
1800	$751	$746	$741	$736	$731	$726	$716	$+70	$+61	$-37	$-42	$+34	$-63	$+59	$+20
1900	$759	$754	$749	$744	$739	$734	$724	$+74	$+65	$-37	$-42	$+34	$-63	$+63	$+20
2000	$767	$762	$757	$752	$747	$742	$732	$+78	$+68	$-37	$-42	$+34	$-63	$+66	$+20
2100	$774	$769	$764	$759	$754	$749	$739	$+82	$+71	$-37	$-42	$+34	$-63	$+69	$+20

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT: ADD $23

CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $20

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR	-$178;	BURNS, OR	-$292;	ENTERPRISE, OR	-$182;	GLADSTONE, OR	-$87;
GRANTS PASS, OR	-$22;	HERMISTON, OR	-$71;	JOHN DAY, OR	-$287;	KLAMATH FALLS, OR	-$70;
LA GRANDE, OR	-$108;	LAKEVIEW, OR	-$239;	MADRAS, OR	-$51;	MYRTLE CREEK, OR	-$133;
MYRTLE POINT, OR	-$171;	OAKRIDGE, OR	-$100;	PENDLETON, OR	-$72;	PRINEVILLE, OR	-$78;
REEDSPORT, OR	-$166;	SWEET HOME, OR	-$82;	TILLAMOCK, OR	-$119;	UMATILLA, OR	-$71;
ABERDEEN, WA	-$102;	BATTLE GROUND, WA	-$54;	CHEHALIS, WA	-$28;	CHELAN, WA	-$89;
COLVILLE, WA	-$118;	DAVENPORT, WA	-$295;	EPHRATA, WA	-$94;	FORKS, WA	-$156;
HOQUIAM, WA	-$102;	MONROE, WA	-$24;	NEWPORT, WA	-$233;	OKANOGAN, WA	-$205;
OMAK, WA	-$205;	PORT ANGELES, WA	-$67;	SHELTON, WA	-$22;	SOUTH BEND, WA	-$102;
SPOKANE, WA	-$44;	TOPPENISH, WA	-$253;	WALLA WALLA, WA	-$56;	WASHOUGAL, WA	-$54;
WHITE SALMON, WA	-$51;						

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 3c MONTHLY BASE RENT CHART - GOOD CONDITION, 2 BDR, 1 BATH, HOUSES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	GAR-AGE PER (CAR)	PLEX	A/C (REF)	FIRE-PLACES
300	$493	$488	$483	$478	$473	$468	$458	$+12	$+10	$-37	$-42	$+34	$-63	$+20	$+20
400	$519	$514	$509	$504	$499	$494	$484	$+16	$+14	$-37	$-42	$+34	$-63	$+20	$+20
500	$540	$535	$530	$525	$520	$515	$505	$+20	$+17	$-37	$-42	$+34	$-63	$+20	$+20
600	$557	$552	$547	$542	$537	$532	$522	$+23	$+20	$-37	$-42	$+34	$-63	$+20	$+20
700	$573	$568	$563	$558	$553	$548	$538	$+27	$+24	$-37	$-42	$+34	$-63	$+23	$+20
800	$586	$581	$576	$571	$566	$561	$551	$+31	$+27	$-37	$-42	$+34	$-63	$+26	$+20
900	$599	$594	$589	$584	$579	$574	$564	$+35	$+31	$-37	$-42	$+34	$-63	$+30	$+20
1000	$611	$606	$601	$596	$591	$586	$576	$+39	$+34	$-37	$-42	$+34	$-63	$+33	$+20
1100	$622	$617	$612	$607	$602	$597	$587	$+43	$+37	$-37	$-42	$+34	$-63	$+36	$+20
1200	$632	$627	$622	$617	$612	$607	$597	$+47	$+41	$-37	$-42	$+34	$-63	$+40	$+20
1300	$642	$637	$632	$627	$622	$617	$607	$+51	$+44	$-37	$-42	$+34	$-63	$+43	$+20
1400	$652	$647	$642	$637	$632	$627	$617	$+55	$+48	$-37	$-42	$+34	$-63	$+46	$+20
1500	$661	$656	$651	$646	$641	$636	$626	$+59	$+51	$-37	$-42	$+34	$-63	$+50	$+20
1600	$670	$665	$660	$655	$650	$645	$635	$+62	$+54	$-37	$-42	$+34	$-63	$+53	$+20
1700	$678	$673	$668	$663	$658	$653	$643	$+66	$+58	$-37	$-42	$+34	$-63	$+56	$+20
1800	$686	$681	$676	$671	$666	$661	$651	$+70	$+61	$-37	$-42	$+34	$-63	$+59	$+20
1900	$694	$689	$684	$679	$674	$669	$659	$+74	$+65	$-37	$-42	$+34	$-63	$+63	$+20

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT: ADD $23

CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $20

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR	-$178;	BURNS, OR	-$292;	ENTERPRISE, OR	-$182;	GLADSTONE, OR	-$87;
GRANTS PASS, OR	-$22;	HERMISTON, OR	-$71;	JOHN DAY, OR	-$287;	KLAMATH FALLS, OR	-$70;
LA GRANDE, OR	-$108;	LAKEVIEW, OR	-$239;	MADRAS, OR	-$51;	MYRTLE CREEK, OR	-$133;
MYRTLE POINT, OR	-$171;	OAKRIDGE, OR	-$100;	PENDLETON, OR	-$72;	PRINEVILLE, OR	-$78;
REEDSPORT, OR	-$166;	SWEET HOME, OR	-$82;	TILLAMOCK, OR	-$119;	UMATILLA, OR	-$71;
ABERDEEN, WA	-$102;	BATTLE GROUND, WA	-$54;	CHEHALIS, WA	-$28;	CHELAN, WA	-$89;
COLVILLE, WA	-$118;	DAVENPORT, WA	-$295;	EPHRATA, WA	-$94;	FORKS, WA	-$156;
HOQUIAM, WA	-$102;	MONROE, WA	-$24;	NEWPORT, WA	-$233;	OKANOGAN, WA	-$205;
OMAK, WA	-$205;	PORT ANGELES, WA	-$67;	SHELTON, WA	-$22;	SOUTH BEND, WA	-$102;
SPOKANE, WA	-$44;	TOPPENISH, WA	-$253;	WALLA WALLA, WA	-$56;	WASHOUGAL, WA	-$54;
WHITE SALMON, WA	-$51;						

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 3d MONTHLY BASE RENT CHART - GOOD CONDITION, 1 BDR, 1 BATH, HOUSES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER -IOR/ INTER -IOR*	FAIR EXTER -IOR/ INTER -IOR*	POOR EXTER -IOR/ INTER -IOR*	GAR-AGE PER (CAR)	PLEX	A/C (REF)	FIRE-PLACES
100	$319	$314	$309	$304	$299	$294	$284	$+4	$+10	$-37	$-42	$+34	$-63	$+20	$+20
200	$375	$370	$365	$360	$355	$350	$340	$+8	$+10	$-37	$-42	$+34	$-63	$+20	$+20
300	$410	$405	$400	$395	$390	$385	$375	$+12	$+10	$-37	$-42	$+34	$-63	$+20	$+20
400	$435	$430	$425	$420	$415	$410	$400	$+16	$+14	$-37	$-42	$+34	$-63	$+20	$+20
500	$456	$451	$446	$441	$436	$431	$421	$+20	$+17	$-37	$-42	$+34	$-63	$+20	$+20
600	$473	$468	$463	$458	$453	$448	$438	$+23	$+20	$-37	$-42	$+34	$-63	$+20	$+20
700	$489	$484	$479	$474	$469	$464	$454	$+27	$+24	$-37	$-42	$+34	$-63	$+23	$+20
800	$503	$498	$493	$488	$483	$478	$468	$+31	$+27	$-37	$-42	$+34	$-63	$+26	$+20
900	$515	$510	$505	$500	$495	$490	$480	$+35	$+31	$-37	$-42	$+34	$-63	$+30	$+20
1000	$527	$522	$517	$512	$507	$502	$492	$+39	$+34	$-37	$-42	$+34	$-63	$+33	$+20
1100	$538	$533	$528	$523	$518	$513	$503	$+43	$+37	$-37	$-42	$+34	$-63	$+36	$+20
1200	$549	$544	$539	$534	$529	$524	$514	$+47	$+41	$-37	$-42	$+34	$-63	$+40	$+20
1300	$559	$554	$549	$544	$539	$534	$524	$+51	$+44	$-37	$-42	$+34	$-63	$+43	$+20
1400	$568	$563	$558	$553	$548	$543	$533	$+55	$+48	$-37	$-42	$+34	$-63	$+46	$+20
1500	$577	$572	$567	$562	$557	$552	$542	$+59	$+51	$-37	$-42	$+34	$-63	$+50	$+20

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

CARPORT: ADD $23

CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $20

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR	-$178;	BURNS, OR	-$292;	ENTERPRISE, OR	-$182;	GLADSTONE, OR	-$87;
GRANTS PASS, OR	-$22;	HERMISTON, OR	-$71;	JOHN DAY, OR	-$287;	KLAMATH FALLS, OR	-$70;
LA GRANDE, OR	-$108;	LAKEVIEW, OR	-$239;	MADRAS, OR	-$51;	MYRTLE CREEK, OR	-$133;
MYRTLE POINT, OR	-$171;	OAKRIDGE, OR	-$100;	PENDLETON, OR	-$72;	PRINEVILLE, OR	-$78;
REEDSPORT, OR	-$166;	SWEET HOME, OR	-$82;	TILLAMOCK, OR	-$119;	UMATILLA, OR	-$71;
ABERDEEN, WA	-$102;	BATTLE GROUND, WA	-$54;	CHEHALIS, WA	-$28;	CHELAN, WA	-$89;
COLVILLE, WA	-$118;	DAVENPORT, WA	-$295;	EPHRATA, WA	-$94;	FORKS, WA	-$156;
HOQUIAM, WA	-$102;	MONROE, WA	-$24;	NEWPORT, WA	-$233;	OKANOGAN, WA	-$205;
OMAK, WA	-$205;	PORT ANGELES, WA	-$67;	SHELTON, WA	-$22;	SOUTH BEND, WA	-$102;
SPOKANE, WA	-$44;	TOPPENISH, WA	-$253;	WALLA WALLA, WA	-$56;	WASHOUGAL, WA	-$54;
WHITE SALMON, WA	-$51;						

* - IF BOTH THE INTERIOR AND EXTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

C. APARTMENTS

For all apartment units, use the rental chart, which appropriately describes the housing class and the number of bedrooms of the subject quarters. The charts for apartments are in Tables 4a through 4d.

Assume a 2-bedroom, 2-bathroom apartment, near Eugene, OR with 760 square feet. The exterior is in poor condition; the interior is in fair condition. The apartment, which was built in 1958, is 45 years old (2003 - 1958), has a carport, and central refrigerated air conditioning.

First, the two-bedroom chart for good condition apartments (Table 4b) should be located and used. These charts are baseline charts, which assume that each apartment is in good condition inside and outside and has one full bathroom. Therefore, if the apartment is in good condition inside and outside and has one bathroom, no additional computations are needed. If there is a deviation from either good inside or outside condition or there are less or more bathrooms than one, then the computations must be changed as discussed below. In the first step, Table 4b is selected as the proper chart for 2-bedroom apartments.

In the second step the size (gross living area) is rounded **down** from 760 to 700 square feet. Under the column headed **"SQFT"** the figure 700 should be located. All further adjustments will be taken from this row.

In the third step the appropriate age column is selected. A 45-year old apartment is between 35 and 45 years old; therefore, the **"45 YRS OLD"** column should be used. A two-bedroom apartment, in good condition with 700 square feet of living space (gross), and which is 45 years of age, has a "Chart Rent" of $424 per month.

The first adjustment is the extra bathroom adjustment charge. Following the 700 SQFT row along to the column headed **"PER EXTRA BATHROOM"** you will find a charge of $34. To compute the charge for the extra bathroom, multiply 1 (1 extra bath) times $34 (the extra bath charge). Add $34 to the rent.

The second and third adjustments are for a poor exterior and a fair interior condition. Follow the 700 SQFT row across the table to the column headed **"POOR EXTERIOR/INTERIOR*"** a deduction of $33 is shown; and in the next column titled **"FAIR EXTERIOR/INTERIOR*"**, a deduction of $28 is shown. Subtract from the rent $33 for poor exterior condition, and $28 for fair interior condition.

The fourth adjustment is for a carport. Beneath the table, under **"STRUCTURAL ADJUSTMENTS"**, there is an instruction to add $22 for a carport of any size. As instructed add $22 to the rent of this apartment.

The fifth adjustment is for the central refrigerated air conditioning system. Follow the column headed AA/C (REFRIG)≅ down to the 700 SQFT row. The amount reflects an addition of $34 for central refrigerated air conditioning.

The final adjustment is the community adjustment. The apartment in this example is located near Eugene, OR. The notes beneath the table (see "**COMMUNITY ADJUSTMENTS**") show no adjustment for Eugene, OR. Therefore, rental values in Eugene, OR for apartments are equal to or greater than the

regional average. Since positive community adjustments are not applied, no community adjustment is shown for Eugene, OR.

The last step is to round the resulting MBRR (Monthly Base Rental Rate) to the nearest whole dollar. Any amount resulting in an amount of $.50 or greater is rounded up; any amount resulting in an amount of $.49 or less is rounded down. The decision to round is discretionary.

In summary, the Monthly Base Rental Rate for the apartment in this example is determined as follows:

Chart Rent (700 SQFT/45 years old)	$424.00
Extra Bath Adjustment (1 X $34)	+34.00
Poor Exterior Adjustment	-33.00
Fair Interior Adjustment	-28.00
Carport Adjustment	+22.00
Central Refrigerated Air Conditioning Adjustment	+34.00
Location Adjustment (Eugene, OR)	- 00.00
Monthly Base Rental Rate	$453.00

TABLE 4a MONTHLY BASE RENT CHART - GOOD CONDITION, 3 BDR, 1 BATH APARTMENTS
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)	A/C (REFRIG)
600	$456	$451	$446	$441	$436	$431	$421	$+29	$+20	$-28	$-33	$+27	$+29
700	$471	$466	$461	$456	$451	$446	$436	$+34	$+24	$-28	$-33	$+27	$+34
800	$487	$482	$477	$472	$467	$462	$452	$+38	$+27	$-28	$-33	$+27	$+39
900	$503	$498	$493	$488	$483	$478	$468	$+43	$+31	$-28	$-33	$+27	$+44
1000	$519	$514	$509	$504	$499	$494	$484	$+48	$+34	$-28	$-33	$+27	$+49
1100	$535	$530	$525	$520	$515	$510	$500	$+53	$+37	$-28	$-33	$+27	$+54
1200	$550	$545	$540	$535	$530	$525	$515	$+58	$+41	$-28	$-33	$+27	$+59
1300	$566	$561	$556	$551	$546	$541	$531	$+62	$+44	$-28	$-33	$+27	$+64
1400	$582	$577	$572	$567	$562	$557	$547	$+67	$+48	$-28	$-33	$+27	$+69
1500	$598	$593	$588	$583	$578	$573	$563	$+72	$+51	$-28	$-33	$+27	$+74
1600	$614	$609	$604	$599	$594	$589	$579	$+77	$+54	$-28	$-33	$+27	$+78
1700	$629	$624	$619	$614	$609	$604	$594	$+82	$+58	$-28	$-33	$+27	$+83
1800	$645	$640	$635	$630	$625	$620	$610	$+86	$+61	$-28	$-33	$+27	$+88

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:
CARPORT (ANY SIZE): ADD $22
FIREPLACE(S): ADD $35
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

GRANTS PASS, OR	-$32;	KLAMATH FALLS, OR	-$25;	LA GRANDE, OR	-$53;	LAKEVIEW, OR	-$88;
MADRAS, OR	-$89;	PRINEVILLE, OR	-$81;	REEDSPORT, OR	-$51;	ABERDEEN, WA	-$20;
FORKS, WA	-$56;	HOQUIAM, WA	-$20;	SOUTH BEND, WA	-$20;	YAKIMA, WA	-$18;

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 4b MONTHLY BASE RENT CHART - GOOD CONDITION, 2 BDR, 1 BATH APARTMENTS
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)	A/C (REFRIG)
400	$397	$392	$387	$382	$377	$372	$362	$+19	$+14	$-28	$-33	$+27	$+20
500	$413	$408	$403	$398	$393	$388	$378	$+24	$+17	$-28	$-33	$+27	$+25
600	$428	$423	$418	$413	$408	$403	$393	$+29	$+20	$-28	$-33	$+27	$+29
700	$444	$439	$434	$429	$424	$419	$409	$+34	$+24	$-28	$-33	$+27	$+34
800	$460	$455	$450	$445	$440	$435	$425	$+38	$+27	$-28	$-33	$+27	$+39
900	$476	$471	$466	$461	$456	$451	$441	$+43	$+31	$-28	$-33	$+27	$+44
1000	$492	$487	$482	$477	$472	$467	$457	$+48	$+34	$-28	$-33	$+27	$+49
1100	$507	$502	$497	$492	$487	$482	$472	$+53	$+37	$-28	$-33	$+27	$+54
1200	$523	$518	$513	$508	$503	$498	$488	$+58	$+41	$-28	$-33	$+27	$+59
1300	$539	$534	$529	$524	$519	$514	$504	$+62	$+44	$-28	$-33	$+27	$+64
1400	$555	$550	$545	$540	$535	$530	$520	$+67	$+48	$-28	$-33	$+27	$+69
1500	$571	$566	$561	$556	$551	$546	$536	$+72	$+51	$-28	$-33	$+27	$+74
1600	$586	$581	$576	$571	$566	$561	$551	$+77	$+54	$-28	$-33	$+27	$+78

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:
CARPORT (ANY SIZE): ADD $22
FIREPLACE(S): ADD $35
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

GRANTS PASS, OR	-$32;	KLAMATH FALLS, OR	-$25;	LA GRANDE, OR	-$53;	LAKEVIEW, OR	-$88;
MADRAS, OR	-$89;	PRINEVILLE, OR	-$81;	REEDSPORT, OR	-$51;	ABERDEEN, WA	-$20;
FORKS, WA	-$56;	HOQUIAM, WA	-$20;	SOUTH BEND, WA	-$20;	YAKIMA, WA	-$18;

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 4c MONTHLY BASE RENT CHART - GOOD CONDITION, 1 BDR, 1 BATH APARTMENTS
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)	A/C (REFRIG)
300	$346	$341	$336	$331	$326	$321	$311	$+14	$+10	$-28	$-33	$+27	$+15
400	$362	$357	$352	$347	$342	$337	$327	$+19	$+14	$-28	$-33	$+27	$+20
500	$378	$373	$368	$363	$358	$353	$343	$+24	$+17	$-28	$-33	$+27	$+25
600	$393	$388	$383	$378	$373	$368	$358	$+29	$+20	$-28	$-33	$+27	$+29
700	$409	$404	$399	$394	$389	$384	$374	$+34	$+24	$-28	$-33	$+27	$+34
800	$425	$420	$415	$410	$405	$400	$390	$+38	$+27	$-28	$-33	$+27	$+39
900	$441	$436	$431	$426	$421	$416	$406	$+43	$+31	$-28	$-33	$+27	$+44
1000	$457	$452	$447	$442	$437	$432	$422	$+48	$+34	$-28	$-33	$+27	$+49
1100	$472	$467	$462	$457	$452	$447	$437	$+53	$+37	$-28	$-33	$+27	$+54
1200	$488	$483	$478	$473	$468	$463	$453	$+58	$+41	$-28	$-33	$+27	$+59
1300	$504	$499	$494	$489	$484	$479	$469	$+62	$+44	$-28	$-33	$+27	$+64
1400	$520	$515	$510	$505	$500	$495	$485	$+67	$+48	$-28	$-33	$+27	$+69
1500	$536	$531	$526	$521	$516	$511	$501	$+72	$+51	$-28	$-33	$+27	$+74

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:
CARPORT (ANY SIZE): ADD $22
FIREPLACE(S): ADD $35
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

GRANTS PASS, OR	-$32;	KLAMATH FALLS, OR	-$25;	LA GRANDE, OR	-$53;	LAKEVIEW, OR	-$88;
MADRAS, OR	-$89;	PRINEVILLE, OR	-$81;	REEDSPORT, OR	-$51;	ABERDEEN, WA	-$20;
FORKS, WA	-$56;	HOQUIAM, WA	-$20;	SOUTH BEND, WA	-$20;	YAKIMA, WA	-$18;

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 4d MONTHLY BASE RENT CHART - GOOD CONDITION, 0 BDR, 1 BATH APARTMENTS
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	15 YRS OLD	25 YRS OLD	35 YRS OLD	45 YRS OLD	55 YRS OLD	75+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER IOR/ INTER IOR*	FAIR EXTER- IOR/ INTER- IOR*	POOR EXTER- IOR/ INTER- IOR*	GAR- AGE (ANY SIZE)	A/C (REFRIG)
100	$265	$260	$255	$250	$245	$240	$230	$+5	$+10	$-28	$-33	$+27	$+15
200	$281	$276	$271	$266	$261	$256	$246	$+10	$+10	$-28	$-33	$+27	$+15
300	$296	$291	$286	$281	$276	$271	$261	$+14	$+10	$-28	$-33	$+27	$+15
400	$312	$307	$302	$297	$292	$287	$277	$+19	$+14	$-28	$-33	$+27	$+20
500	$328	$323	$318	$313	$308	$303	$293	$+24	$+17	$-28	$-33	$+27	$+25
600	$344	$339	$334	$329	$324	$319	$309	$+29	$+20	$-28	$-33	$+27	$+29
700	$360	$355	$350	$345	$340	$335	$325	$+34	$+24	$-28	$-33	$+27	$+34
800	$375	$370	$365	$360	$355	$350	$340	$+38	$+27	$-28	$-33	$+27	$+39
900	$391	$386	$381	$376	$371	$366	$356	$+43	$+31	$-28	$-33	$+27	$+44
1000	$407	$402	$397	$392	$387	$382	$372	$+48	$+34	$-28	$-33	$+27	$+49
1100	$423	$418	$413	$408	$403	$398	$388	$+53	$+37	$-28	$-33	$+27	$+54

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:
CARPORT (ANY SIZE): ADD $22
FIREPLACE(S): ADD $35
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

GRANTS PASS, OR	-$32;	KLAMATH FALLS, OR	-$25;	LA GRANDE, OR	-$53;	LAKEVIEW, OR	-$88;
MADRAS, OR	-$89;	PRINEVILLE, OR	-$81;	REEDSPORT, OR	-$51;	ABERDEEN, WA	-$20;
FORKS, WA	-$56;	HOQUIAM, WA	-$20;	SOUTH BEND, WA	-$20;	YAKIMA, WA	-$18;

*IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

D. MOBILE HOMES, TRAVEL TRAILERS, AND HOUSEBOATS

For these housing classes, use the mobile home base rental charts (Tables 5a-c). To familiarize the reader with these charts, assume a 490 square foot, 1-bedroom mobile home built in 1968 with a 3/4 bathroom. This mobile home is in poor interior and poor exterior condition and is located near Burns, OR. The Monthly Base Rental Rate for the mobile home in this example is calculated from Table 5c as follows.

The 1-bedroom chart for good condition mobile homes (Table 5c) should be located and used. This chart is a baseline chart, which assumes that each mobile home is in good condition inside and outside and has one full bathroom. Therefore, if the mobile home is in good condition inside and outside and has one full bathroom, no additional computations are needed. If there is a deviation from either good inside or outside condition or there are less or more bathrooms than one, then the computations must be changed accordingly.

First, locate the table for mobile homes in good condition with *one full bathroom* (Table 5c). Next, the gross square feet of living area should be rounded down to 400 square feet, and the **age** (2003 - 1968 = 35 years) is rounded **up** to 35+ years. The column headed **"SQFT"** is followed **down** to 400. All other adjustments are taken from this row. On this row, under the column headed **"35+ YRS OLD,"** the "Chart Rent" is $318.

The base rental value of $318 (computed above) includes the value of one full bathroom. Since the unit in this example has only a 3/4 bathroom, an adjustment must be made for the missing 1/4 bathroom. At the top of the table is a column titled **"PER EXTRA BATHROOM."** Follow this column down to the 400 SQFT row. A value of $14 is shown. Multiply this value times .25 (1/4 bathroom) to calculate the value of the missing 1/4 bathroom ($14 X .25 = $3.50). Subtract $4 (rounded) from the rent.

The second and third adjustments are for the condition of the unit. Follow the 400 SQFT row to the column headed **"POOR EXTERIOR/INTERIOR*"**; subtract $39 for the poor exterior condition and another $39 for the poor interior condition.

The final adjustment is the community adjustment. The mobile home in this example is located near Burns, OR. The notes beneath the table (see "**COMMUNITY ADJUSTMENTS**") show an adjustment of -$142 for Burns, OR. The rental values for mobile homes in Burns, OR are much lower than the survey area average. The rent for mobile homes which use Burns, OR as the nearest established community should be reduced by $142.

The Monthly Base Rental Rate for this mobile home is shown below.

Chart Rent (400 SQFT/35+ years old)	$318.00
Bathroom Adjustment (.25 X $14)	- 4.00
Poor Exterior	- 39.00
Poor Interior	- 39.00
Location Adjustment (Burns, OR)	- 142.00
Computed Monthly Base Rental Rate	$94.00
Actual Monthly Base Rental Rate (Minimum Base)	$210.00

Note: In this example, the Monthly Base Rental Rate computes to $94.00, which is less than the $210.00 minimum Monthly Base Rental Rate for the Oregon/Washington Survey Region (refer to the footnotes on each rent table for the minimum base rent). Therefore, the Monthly Base Rental Rate for the mobile home in this example will be set at $210.00. Keep in mind that the *Monthly Base Rental Rate* is different from the minimum monthly *final rent*. Thus, $210.00 is not the minimum final rent possible.

TABLE 5a MONTHLY BASE RENT CHART - GOOD CONDITION, 3 BDR, 1 BATH MOBILE HOMES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	10 YRS OLD	15 YRS OLD	20 YRS OLD	25 YRS OLD	30 YRS OLD	35+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER-IOR/ INTER-IOR*	FAIR EXTER-IOR/ INTER-IOR*	POOR EXTER-IOR/ INTER-IOR*
400	$416	$393	$378	$367	$358	$351	$344	$+14	$+15	$-36	$-39
500	$429	$406	$391	$380	$371	$364	$358	$+18	$+15	$-36	$-39
600	$443	$420	$405	$393	$385	$377	$371	$+21	$+15	$-36	$-39
700	$456	$433	$418	$407	$398	$391	$385	$+25	$+15	$-36	$-39
800	$470	$446	$431	$420	$411	$404	$398	$+28	$+15	$-36	$-39
900	$483	$460	$445	$434	$425	$418	$411	$+32	$+15	$-36	$-39
1000	$496	$473	$458	$447	$438	$431	$425	$+35	$+15	$-36	$-39
1100	$510	$487	$472	$460	$452	$444	$438	$+39	$+15	$-36	$-39
1200	$523	$500	$485	$474	$465	$458	$452	$+42	$+15	$-36	$-39
1300	$537	$513	$498	$487	$478	$471	$465	$+46	$+15	$-36	$-39
1400	$550	$527	$512	$501	$492	$485	$478	$+49	$+15	$-36	$-39
1500	$563	$540	$525	$514	$505	$498	$492	$+53	$+15	$-36	$-39
1600	$577	$554	$539	$527	$519	$511	$505	$+56	$+15	$-36	$-39

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

GARAGE (ANY SIZE): ADD $26
CARPORT (ANY SIZE): ADD $18
CENTRAL REFRIGERATED AIR CONDITIONING: ADD $20
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR -$47; BROOKINGS, OR -$44; BURNS, OR -$142; GOLD BEACH, OR -$44;
HERMISTON, OR -$76; JOHN DAY, OR -$71; LA GRANDE, OR -$20; LAKEVIEW, OR -$182;
MADRAS, OR -$30; PRINEVILLE, OR -$30; REEDSPORT, OR -$40; ROSEBURG, OR -$121;
SHADY COVE, OR -$73; UMATILLA, OR -$76; DAVENPORT, WA -$105; EPHRATA, WA -$64;
LONGVIEW, WA -$11; OKANOGAN, WA -$56; OMAK, WA -$56; OTHELLO, WA -$78;
SPOKANE, WA -$94;

* - IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 5b MONTHLY BASE RENT CHART - GOOD CONDITION, 2 BDR, 1 BATH MOBILE HOMES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	10 YRS OLD	15 YRS OLD	20 YRS OLD	25 YRS OLD	30 YRS OLD	35+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER-IOR/ INTER-IOR*	FAIR EXTER-IOR/ INTER-IOR*	POOR EXTER-IOR/ INTER-IOR*
400	$403	$380	$365	$353	$345	$337	$331	$+14	$+15	$-36	$-39
500	$413	$390	$375	$364	$355	$347	$341	$+18	$+15	$-36	$-39
600	$423	$400	$385	$374	$365	$358	$351	$+21	$+15	$-36	$-39
700	$433	$410	$395	$384	$375	$368	$361	$+25	$+15	$-36	$-39
800	$443	$420	$405	$394	$385	$378	$372	$+28	$+15	$-36	$-39
900	$453	$430	$415	$404	$395	$388	$382	$+32	$+15	$-36	$-39
1000	$463	$440	$425	$414	$405	$398	$392	$+35	$+15	$-36	$-39
1100	$473	$450	$435	$424	$415	$408	$402	$+39	$+15	$-36	$-39
1200	$484	$460	$445	$434	$425	$418	$412	$+42	$+15	$-36	$-39
1300	$494	$470	$455	$444	$436	$428	$422	$+46	$+15	$-36	$-39
1400	$504	$481	$466	$454	$446	$438	$432	$+49	$+15	$-36	$-39
1500	$514	$491	$476	$465	$456	$448	$442	$+53	$+15	$-36	$-39

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

GARAGE (ANY SIZE): ADD $26
CARPORT (ANY SIZE): ADD $18
CENTRAL REFRIGERATED AIR CONDITIONING: ADD $20
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR	-$47;	BROOKINGS, OR	-$44;	BURNS, OR	-$142;	GOLD BEACH, OR	-$44;
HERMISTON, OR	-$76;	JOHN DAY, OR	-$71;	LA GRANDE, OR	-$20;	LAKEVIEW, OR	-$182;
MADRAS, OR	-$30;	PRINEVILLE, OR	-$30;	REEDSPORT, OR	-$40;	ROSEBURG, OR	-$121;
SHADY COVE, OR	-$73;	UMATILLA, OR	-$76;	DAVENPORT, WA	-$105;	EPHRATA, WA	-$64;
LONGVIEW, WA	-$11;	OKANOGAN, WA	-$56;	OMAK, WA	-$56;	OTHELLO, WA	-$78;
SPOKANE, WA	-$94;						

* - IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

TABLE 5c MONTHLY BASE RENT CHART - GOOD CONDITION, 1 BDR, 1 BATH MOBILE HOMES
OREGON/WASHINGTON SURVEY REGION

SQFT	5 YRS OLD	10 YRS OLD	15 YRS OLD	20 YRS OLD	25 YRS OLD	30 YRS OLD	35+ YRS OLD	PER EXTRA BATH ROOM	EXCEL EXTER-IOR/ INTER-IOR*	FAIR EXTER-IOR/ INTER-IOR*	POOR EXTER-IOR/ INTER-IOR*
100	$369	$346	$331	$320	$311	$304	$298	$+4	$+15	$-36	$-39
200	$376	$353	$338	$327	$318	$311	$304	$+7	$+15	$-36	$-39
300	$383	$360	$345	$333	$325	$317	$311	$+11	$+15	$-36	$-39
400	$390	$366	$351	$340	$331	$324	$318	$+14	$+15	$-36	$-39
500	$396	$373	$358	$347	$338	$331	$325	$+18	$+15	$-36	$-39
600	$403	$380	$365	$354	$345	$338	$332	$+21	$+15	$-36	$-39
700	$410	$387	$372	$361	$352	$345	$338	$+25	$+15	$-36	$-39
800	$417	$394	$379	$367	$359	$351	$345	$+28	$+15	$-36	$-39
900	$424	$400	$385	$374	$365	$358	$352	$+32	$+15	$-36	$-39
1000	$430	$407	$392	$381	$372	$365	$359	$+35	$+15	$-36	$-39
1100	$437	$414	$399	$388	$379	$372	$366	$+39	$+15	$-36	$-39
1200	$444	$421	$406	$395	$386	$379	$372	$+42	$+15	$-36	$-39

ADDITIONAL ADJUSTMENTS:

STRUCTURAL ADJUSTMENTS:

GARAGE (ANY SIZE): ADD $26
CARPORT (ANY SIZE): ADD $18
CENTRAL REFRIGERATED AIR CONDITIONING: ADD $20
CENTRAL EVAPORATIVE AIR CONDITIONING: ADD $15

COMMUNITY ADJUSTMENTS:

BAKER CITY, OR	-$47;	BROOKINGS, OR	-$44;	BURNS, OR	-$142;	GOLD BEACH, OR	-$44;
HERMISTON, OR	-$76;	JOHN DAY, OR	-$71;	LA GRANDE, OR	-$20;	LAKEVIEW, OR	-$182;
MADRAS, OR	-$30;	PRINEVILLE, OR	-$30;	REEDSPORT, OR	-$40;	ROSEBURG, OR	-$121;
SHADY COVE, OR	-$73;	UMATILLA, OR	-$76;	DAVENPORT, WA	-$105;	EPHRATA, WA	-$64;
LONGVIEW, WA	-$11;	OKANOGAN, WA	-$56;	OMAK, WA	-$56;	OTHELLO, WA	-$78;
SPOKANE, WA	-$94;						

* - IF BOTH THE EXTERIOR AND INTERIOR ARE IN THIS CONDITION, APPLY THIS FACTOR TWICE.

REGARDLESS OF ADJUSTMENTS, THE MINIMUM BASE RENT IS $210 PER MONTH.

THE APPROPRIATE CPI FACTOR SHOULD BE APPLIED AFTER COMPLETING THE ABOVE ADJUSTMENTS.

E. CABINS OR LOOKOUTS

For purposes of rental rate establishment, the rental housing class most comparable to cabins or lookouts would be 1-bedroom, single-family houses, regardless of the number of bedrooms in the cabin. One-bedroom, single-family rental houses generally consist of smaller and older housing units. Where the cabins or lookouts are outfitted for housekeeping, and contain an independent primary heating system, the rental rates (including all applicable adjustments) are determined by using the 1-bedroom house chart (i.e. Table 3d).

Where a cabin or lookout lacks full housekeeping facilities (including running water, an inside heated bathroom, or a central heating system), additional adjustments (shown below) must be made to the Monthly Base Rental Rate. A free standing stove without a fan, or a fireplace does not qualify as a central primary heating system. These adjustments are designed to take into consideration the inconvenience resulting from the lack of full housekeeping facilities. However, the adjusted monthly base rental rate may not be set below the minimum monthly base rent of $210.

. No Electricity =	- 20%
. No Inside Bathroom =	- 20%
. No Running Water =	- 20%
. No Central Heating System =	- 15% (*)
. Less Than Two Rooms (One-Room Cabin or Lookout) =	- 10%

(*) Applied only if used during the heating season.

F. BUNKHOUSE AND DORMITORIES

Bunkhouses and dormitories should only include housing units that have been specifically constructed or modified for use as bunkhouses or dormitories. Single-family houses, apartments or mobile homes that are **used** as dormitories or bunkhouses, must be valued as what they are (houses, apartments or mobile homes), with the rent divided by the number of **planned** occupants (normally 2 per bedroom).

Dormitory or bunkhouse units typically lack either a living room or kitchen, or have common baths and kitchens serving many people. Many also have multiple bunk beds in large ward-like rooms. Such housing units pose a valuation problem, as they are normally found only in association with institutions such as the military or colleges, of which its occupants are members. Since these institutions do not typically rent to the public at large, one cannot obtain an arms-length market rent.

Under circumstances where there is a lack of comparable rental data, OMB Circular A-45 provides that rental rates may be established using an extension of the Principle of Comparability. Under this procedure, rental rates are established using the most comparable rental housing available, and the rate is essentially 50 percent of the average house rent.

During the February, 1994 National Quarters Conference, the National Quarters Council decided that one aggregate monthly rate should be established for **all** dormitories in a survey region. This aggregate dormitory rate, which includes the value of Government-provided utilities, furnishings and services, was determined as follows. An analysis of the comparables used in this survey found that the average single-family house had 1,233 square feet of finished floor space, 2.6 bedrooms and an average monthly-adjusted contract rent of $685. By applying an extension of the Principle of Comparability, the Base Shelter Rental Rate (BSRR) for bunkhouses and dormitories is calculated as shown below.

During the 2002 National Quarters Conference, the National Quarters Council reviewed different dormitory costing methods for the newer types of dormitories being built by some agencies. In researching new and existing dormitory models it was found the majority of the dormitories plan to house two occupants per room, which the current costing methodology is based upon. In addition, most occupants in dormitories share both a kitchen and bathroom. Based on these factors the Council decided to continue using the current costing methodology.

Average adjusted contract rent x .5 = $685 x .5 = $343.00 (Rounded)

$343.00 / (average # of bedrooms x 2 occupants per bedroom)
$343.00 / (2.6 bedrooms x 2 occupants) = $343.00 / 5.2 = $65.96 per month/per occupant.

Charges were then added to this rate for utilities, services and furnishings that are provided by the Government. The aggregate value of these items was based on a study of the rates prevailing in the regional survey area. These charges were prorated based upon a 1,233 square foot, 2.6 bedrooms, single-family house occupied by 2 people per bedroom. The aggregate charge for these related facilities is $44.15.

Monthly, weekly, and daily bunkhouse and dormitory rates are computed as follows.

TABLE 6 BUNKHOUSE/DORMITORY RENTS

OREGON/WASHINGTON

Monthly Charge

Dormitory Rate $65.96
Related Facilities Charges $44.15

MBRR ..... $110.10 (Rounded)

Bi-Weekly Charge

To convert to bi-weekly rate
multiply MBRR by .4615 and
round to nearest five cents $50.80

Weekly Charge

To convert to weekly rate
multiply MBRR by .2308 and
round to nearest five cents $25.40

Daily Charge

To convert to daily rate
multiply MBRR by .0333 and
round to nearest five cents $3.65

Note: An administrative adjustment of -10% is permitted if 3 or more people must share a bedroom or sleeping area. Also, an administrative adjustment of –10% is permitted for dormitories that lack kitchen or cooking facilities.

G. TRANSIENT QUARTERS

Transient quarters are those that are occupied on a transient basis, normally for a period of 90 days or less. Government provided transient quarters offer a range of accommodations. At some locations kitchen facilities, private telephones and private bathrooms may be available; at others, they are not provided. At some locations, maid service is provided (with varying degrees of frequency); at other locations, employees are "issued" bedding and other domestic items, and must take care of their own house keeping arrangements.

Given the diversity of facilities and services associated with Government-provided transient quarters, the QMIS National Quarters Council determined that private housing, comparable to Government transient quarters, generally does not exist. Accordingly, the rental charges for transient quarters have been established by extending the principle of comparability, as provided in OMB Circular A-45.

Essentially, the rental charge for transient quarters is the sum of the monthly dormitory rate (see Table 6); a monthly charge for maid service (Table 18); and a 20 percent administrative/service charge required by OMB Circular A-45 paragraph 7.c (4)(a). Monthly, weekly and daily charges for transient quarters are shown, below, in Table 7.

TABLE 7 TRANSIENT QUARTERS RENTS

Dormitory BSRR	$65.96
Related Facilities Charges (Table 6)	44.15
Maid Service (Table 18)	70.45
Subtotal	$180.56
Administrative Charge (OMB Cir. A-45)	x 1.20
Total	$216.67
Monthly Charge (Rounded)	$216.65
Bi-Weekly Charge ($216.65 x .4615 Rounded)	$100.00
Weekly Charge ($216.65 x .2308 Rounded)	$50.00
Daily Charge ($216.65 x .0333 Rounded)	$7.20

H. TRAILER SPACES

During the course of the survey, trailer pads were surveyed in a wide variety of mobile home parks and varied widely in physical characteristics, utilities, rents, and geographical location.

A simplified analysis of this data was done. The value of related facilities in the contract rent was subtracted to arrive at an adjusted rent. After excluding extreme outliers, the average adjusted rent was determined for the remaining samples.

The average adjusted rent was then divided into the actual rent of each remaining sample. Those communities where the adjusted contract rents were significantly lower than the average rent for the region were given their typical adjusted rents. The rental rates of trailer pads in all other communities were established at the survey average rental level for the region.

During the February, 1993 National Quarters Conference, the National Quarters Officers of the agencies that participate in the Quarters Management Program agreed to assess the same monthly base rental rate (the rate for a single-wide space) for **all** GFQ trailer spaces. This is because most employees do not own/occupy doublewide mobile homes, and because the market differences are negligible.

To determine the trailer pad Monthly Base Rental Rate, use the applicable rate contained in Table 8. Do not use the rates in Table 8 if the trailer pad is occupied by a Government-owned or leased mobile home, as the land rent is already included in the base rent for all improved quarters.

If, as an example, the trailer pad were occupied by a tenant-owned mobile home located near Okanogan, WA, the base rent for this pad would be $127 per month. If, for another example, the trailer space were located near Sandy, OR, the base rental rate for this pad would be $200 (the "All Other Locations" charge). No other adjustments are made for physical characteristics such as the date the trailer pad was installed, the front or square footage, or the total number of sites at that location.

However, all appropriate administrative adjustments (such as amenity and isolation adjustments), as well as all charges for Government provided related facilities (such as utilities and furnishings) should be applied to the Monthly Base Rental Rates in Table 8 to determine the monthly net rental charge.

TABLE 8 TRAILER SPACES - MONTHLY BASE RENTAL RATES

COMMUNITIES	MONTHLY BASE RENTAL RATES
IDAHO	
Nampa, ID	$172
OREGON	
Burns, OR	$99
Enterprise, OR	$122
Gold Beach, OR	$109
Grants Pass, OR	$164
Hermiston, OR	$159
Klamath Falls, OR	$130
Lakeview, OR	$116
Myrtle Point, OR	$139
Newport, OR	$180
Pendleton, OR	$166
Reedsport, OR	$148
Umatilla, OR	$159
WASHINGTON	
Aberdeen, WA	$177
Colville, WA	$122
Davenport, WA	$150
Ephrata, WA	$137
Forks, WA	$91
Hoquiam, WA	$177
Okanogan, WA	$127
Omak, WA	$127
Port Angeles, WA	$179
Spokane, WA	$187
Toppenish, WA	$177
White Salmon, WA	$191
ALL OTHER LOCATIONS	$200

I. OBSOLETE QUARTERS

OMB Circular A-45 revised October 20, 1993 excludes from the term rental quarters ". . . housing which due to extreme deterioration is unsuitable for occupancy except in exigent circumstances. . .." The net effect of this change means there will be no base rental rate for obsolete quarters. However, assessments will be made for utilities, furnishings, appliances and any other services that are provided by the Government.

The Department of the Interior Quarters Handbook (DQH), and the regulations of other QMIS program participants, provide that housing used as employee quarters must be safe, sanitary, and energy efficient. Where housing is in obsolete condition, it is by definition unfit for use as employee housing, and should be renovated, replaced, destroyed or used for non-residential purposes. Section 7.3A of the DQH also provides that the appropriate Program Assistant Secretary, or his/her designee (Bureau Head), may authorize temporary occupancy (for a period not to exceed one year), pending rehabilitation or replacement action where sufficient written justification is provided.

VI. CHARGES FOR UTILITIES, APPLIANCES AND RELATED SERVICES

A. BACKGROUND

OMB Circular A-45 requires that, whenever possible, utilities should be provided by a private company and billed directly to quarters occupants. Where Government-furnished utilities are provided, they should be metered or measured. When Government-furnished utilities are not metered or measured, consumption will be determined from an analysis of the average amounts of utilities used in comparable private housing in the nearest established community or survey area. **Where the Government furnishes utilities, and where the quarters rental rates are established by the regional survey method, the utility rates shall be the regional average utility rates prescribed in this report - <u>not</u> the rates prevailing in the nearest established community.**

The regional average utility rates contained in this report include all applicable delivery charges, adjustments, taxes and surcharges. Charges for Government-provided appliances, services and furnishings will be based upon nationwide average costs.

The following sections of this report detail the consumption and cost data to be used in the circumstances described above. The cost data in this report will be updated by the Quarters Operations Office each year and distributed with the Consumer Price Index (CPI) adjustment that takes effect each year.

B. ENERGY CONSUMPTION STUDY

1. **General**. Energy consumption estimates are required where the Government furnishes the space heating or cooling fuel and the electricity, and where consumption is neither metered nor measured. In such instances, average energy consumption must be estimated and the Government must assess a charge based on private sector energy costs in the survey area. No methodology for estimating energy consumption can exactly predict the amounts of energy needed to heat or cool specific dwellings. Precise consumption measurements are possible only when metering is used. However, the methodology used in this report will yield **reasonable** estimates of the heating and cooling energy consumption requirements of unmetered dwellings. The methodology employed in this section was contractor-developed. For this report, however, the contractor-provided tables and conversion charts have been reformatted, and the methodology has been restated to simplify the process of estimating energy consumption requirements. The unit costs for various fuel types and for electricity (e.g., the cost per gallon for fuel oil and propane; the cost per MCF (1,000 cubic feet) for natural gas; and the cost per KwH for electricity) are regional averages of the unit fuel/electricity prices gathered by the contractor in each community surveyed.

2. **Housing Prototypes**. For the Oregon/Washington energy study, estimates of the heating and cooling energy requirements were prepared for each of the following six prototypical housing units.

   Type I - Single family, one story, no basement

   Type II - Single family, one story, full basement

   Type III - Single family, two story, no basement

   Type IV - Single family, two story, full basement

   Type V - Apartment unit

   Type VI - Mobile Home

3. **Assumptions**. For each of the housing prototypes, the following assumptions were made:

   a. Location. - The housing is located in Madras, OR.

   b. R values. - Each housing type has the R values of insulation in floors, walls, and ceilings recommended in the HUD Minimum Property Standards (HUD-MPS) for the Madras, OR area.

   c. Occupants. - The housing contains an average compliment of occupants who are energy conscious (one person per 500 feet of floor space was assumed).

   d. All measurements are of finished living space only and are based upon exterior dimensions.

e. Condition. - The housing is in good condition.

f. Building shape. - A rectangular shape with a ratio of 2:1 was established. This provides more building skin than a square configuration therefore, the rectangular shape yields a conservative estimate of skin loads.

g. Window area. - A window area of 10 percent of wall area was used to match UBC (Uniform Building Code) minimum window area standards.

h. Roof type. - A flat or pitched roof with ceiling insulation was assumed in all cases.

i. Air changes. - 1.5 air changes per hour was established as representing a conservative estimate of air changes in residential applications.

j. Perimeter loss. - Approximately 10 percent of overall building load is attributed to the slab on grade floors with rigid insulation to a value of R-6.

4. Using the above assumptions, infiltration factors developed by the Department of Energy, R values, building dimensions, and cooling and heating degree days, a contractor has formulated methodologies for estimating British Thermal Unit (BTU) and kilowatt hour (KwH) consumption rates, and costs, for heating and cooling. The relevant portions of the methodology are explained below.

C. SPACE HEATING (FOSSIL FUEL) CONSUMPTION/COST CALCULATIONS

To illustrate the procedure for calculating the cost of heating with fossil fuel, a single story 1,850 square foot house, with no basement, located near Baker City, OR will be used as an example.

1. The first step is to select from among Tables 9a through 9f, the table that most closely describes the quarters unit at issue. In this case, Table 9a is for a 1-story, single-family house with a partial (50 percent or less) or no basement (Prototype I). When determining the prototype, use the total basement (finished and unfinished) square footage. Unfinished space is only considered when determining the prototype. It is never used when using a rent setting or consumption chart. Table 9a should be selected in this example.

2. The second step is to determine the number of BTU's consumed **annually** for heating the house used in this example. Select from Table 9a the annual MBTU (million BTU's) consumption appropriate for the heating degree days (HDD's) and the gross **finished** square footage of the house in this example. Use the table as shown below.

   a. Find the number of HDD's for the established community near which the quarters are located. Table 10 contains the HDD's for the nearest established communities in the Oregon/Washington survey region; this table shows that Baker City, OR has 7,186 HDD's. In Table 9a, 7,186 HDD's lies between the columns headed **"7,000"** and **"7,350."** Round 7,186 HDD's down to 7,000 HDD's.

   b. In Table 9a, 1,850 square feet (the size of the house used in the example) lies between 1,800 and 2,000 square feet; round 1,850 down to 1,800 square feet.

c. From Table 9a (1,800 square feet and 7,000 HDD's) the annual MBTU consumption rate is 82.9 MBTU's.

3. The third step is to calculate the amount of fossil fuel needed to produce 82.9 MBTU's. Table 11 shows the amount of fossil fuel needed to produce 1 MBTU. The total amount of heating fuel required to produce 82.9 MBTU's is computed by multiplying the appropriate fuel factor in Table 11 by the number of MBTU's. In this case the fuel required is:

Natural gas:	82.9 MBTU's x 1 MCF	=	82.9 MCF.
Propane:	82.9 MBTU's x 10.2 gallons	=	845.58 gallons
Fuel oil:	82.9 MBTU's x 7.04 gallons	=	583.62 gallons

4. The fourth step is to calculate the annual cost of the fuel consumed. This can be done by multiplying the annual fuel consumption by the unit fuel charges shown in Table 12. Following this procedure, the charge for fuel consumed annually to produce 82.9 MBTU's is:

Natural gas:	82.9 MCF x $8.74 (per MCF)	=	$724.55
Propane:	845.58 gallons x $1.67(per gallon)	=	$1,412.12
Fuel oil:	583.62 gallons x $1.49 (per gallon)	=	$869.59

5. The fifth step is to calculate the monthly charge for fossil heating fuel. This is done simply by dividing the annual charges (above) by 12 (months). In this manner the monthly charges are: natural gas = $60.38; propane = $117.68 and fuel oil = $72.47.

6. The final step is to multiply the monthly charge (computed in step 5 above) by the appropriate HUD MPS Heating Zone conversion factor (Table 13). In order to use Table 13, it is first necessary to determine the HUD MPS Zone for the community at issue (Baker City, OR). Table 10 shows the HUD MPS Zones for the nearest established communities located within the Oregon/Washington survey region. From Table 10, it can be seen that Baker City, OR is in MPS Zone 7. The conversion factor can now be found in Table 13. The conversion factor for a single story dwelling with no basement (Prototype I) in HUD MPS Zone 7 is 1.13. Multiply the monthly charges determined in step 5 above by 1.13 (the conversion factor). In this manner, the heating fuel charge can be computed for any quarters unit in any community or location. In this example, the final monthly fossil fuel heating costs are $68.23 ($60.38 x 1.13) for natural gas, $132.98 ($117.68 x 1.13) for propane and $81.89 ($72.47 x 1.13) for fuel oil.

The above example pertained to a single story dwelling with a partial (50 percent or less) or no basement. When calculating the heating fuel charge for a different type of housing (including apartments and mobile homes), use the Table (9a through f) which most closely describes the quarters unit to compute the annual MBTU consumption.

TABLE 9a ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE I

Single Family, One Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating Degree Days																
	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000	7350	7700	8050	8400	8750	9100
100	2.3	2.5	2.8	3.0	3.2	3.5	3.7	3.9	4.1	4.4	4.6	4.8	5.1	5.3	5.5	5.8	6.0
200	4.6	5.1	5.5	6.0	6.4	6.9	7.4	7.8	8.3	8.7	9.2	9.7	10.1	10.6	11.0	11.5	12.0
400	9.2	10.1	11.0	12.0	12.9	13.8	14.7	15.7	16.6	17.5	18.4	19.3	20.3	21.2	22.1	23.0	23.9
600	13.8	15.2	16.6	18.0	19.3	20.7	22.1	23.5	24.9	26.2	27.6	29.0	30.4	31.8	33.1	34.5	35.9
800	18.4	20.3	22.1	23.9	25.8	27.6	29.5	31.3	33.1	35.0	36.8	38.7	40.5	42.4	44.2	46.0	47.9
1000	23.0	25.3	27.6	29.9	32.2	34.5	36.8	39.1	41.4	43.7	46.0	48.3	50.6	52.9	55.2	57.5	59.8
1200	27.6	30.4	33.1	35.9	38.7	41.4	44.2	47.0	49.7	52.5	55.2	58.0	60.8	63.5	66.3	69.1	71.8
1400	32.2	35.4	38.7	41.9	45.1	48.3	51.6	54.8	58.0	61.2	64.4	67.7	70.9	74.1	77.3	80.6	83.8
1600	36.8	40.5	44.2	47.9	51.6	55.2	58.9	62.6	66.3	70.0	73.7	77.3	81.0	84.7	88.4	92.1	95.8
1800	41.4	45.6	49.7	53.9	58.0	62.1	66.3	70.4	74.6	78.7	82.9	87.0	91.1	95.3	99.4	103.6	107.7
2000	46.0	50.6	55.2	59.8	64.4	69.1	73.7	78.3	82.9	87.5	92.1	96.7	101.3	105.9	110.5	115.1	119.7
2200	50.6	55.7	60.8	65.8	70.9	76.0	81.0	86.1	91.1	96.2	101.3	106.3	111.4	116.5	121.5	126.6	131.7
2400	55.2	60.8	66.3	71.8	77.3	82.9	88.4	93.9	99.4	105.0	110.5	116.0	121.5	127.1	132.6	138.1	143.6
2600	59.8	65.8	71.8	77.8	83.8	89.8	95.8	101.7	107.7	113.7	119.7	125.7	131.7	137.6	143.6	149.6	155.6
2800	64.4	70.9	77.3	83.8	90.2	96.7	103.1	109.6	116.0	122.5	128.9	135.3	141.8	148.2	154.7	161.1	167.6
3000	69.1	76.0	82.9	89.8	96.7	103.6	110.5	117.4	124.3	131.2	138.1	145.0	151.9	158.8	165.7	172.6	179.5

TABLE 9b ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE II
Single Family, Single Story, Full Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating Degree Days																
	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000	7350	7700	8050	8400	8750	9100
100	1.7	1.8	2.0	2.2	2.3	2.5	2.7	2.8	3.0	3.2	3.3	3.5	3.6	3.8	4.0	4.1	4.3
200	3.3	3.6	4.0	4.3	4.6	5.0	5.3	5.6	6.0	6.3	6.6	7.0	7.3	7.6	8.0	8.3	8.6
400	6.6	7.3	8.0	8.6	9.3	10.0	10.6	11.3	11.9	12.6	13.3	13.9	14.6	15.3	15.9	16.6	17.3
600	10.0	10.9	11.9	12.9	13.9	14.9	15.9	16.9	17.9	18.9	19.9	20.9	21.9	22.9	23.9	24.9	25.9
800	13.3	14.6	15.9	17.3	18.6	19.9	21.2	22.6	23.9	25.2	26.5	27.9	29.2	30.5	31.8	33.2	34.5
1000	16.6	18.2	19.9	21.6	23.2	24.9	26.5	28.2	29.9	31.5	33.2	34.8	36.5	38.2	39.8	41.5	43.1
1200	19.9	21.9	23.9	25.9	27.9	29.9	31.8	33.8	35.8	37.8	39.8	41.8	43.8	45.8	47.8	49.8	51.8
1400	23.2	25.5	27.9	30.2	32.5	34.8	37.2	39.5	41.8	44.1	46.4	48.8	51.1	53.4	55.7	58.1	60.4
1600	26.5	29.2	31.8	34.5	37.2	39.8	42.5	45.1	47.8	50.4	53.1	55.7	58.4	61.0	63.7	66.3	69.0
1800	29.9	32.8	35.8	38.8	41.8	44.8	47.8	50.8	53.7	56.7	59.7	62.7	65.7	68.7	71.7	74.6	77.6
2000	33.2	36.5	39.8	43.1	46.4	49.8	53.1	56.4	59.7	63.0	66.3	69.7	73.0	76.3	79.6	82.9	86.3
2200	36.5	40.1	43.8	47.4	51.1	54.7	58.4	62.0	65.7	69.3	73.0	76.6	80.3	83.9	87.6	91.2	94.9
2400	39.8	43.8	47.8	51.8	55.7	59.7	63.7	67.7	71.7	75.6	79.6	83.6	87.6	91.6	95.5	99.5	103.5
2600	43.1	47.4	51.8	56.1	60.4	64.7	69.0	73.3	77.6	81.9	86.3	90.6	94.9	99.2	103.5	107.8	112.1
2800	46.4	51.1	55.7	60.4	65.0	69.7	74.3	79.0	83.6	88.2	92.9	97.5	102.2	106.8	111.5	116.1	120.8
3000	49.8	54.7	59.7	64.7	69.7	74.6	79.6	84.6	89.6	94.5	99.5	104.5	109.5	114.5	119.4	124.4	129.4

TABLE 9c ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE III
Single Family, Two Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating Degree Days																
	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000	7350	7700	8050	8400	8750	9100
100	1.9	2.1	2.3	2.5	2.7	2.9	3.1	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.7	4.8	5.0
200	3.9	4.3	4.7	5.0	5.4	5.8	6.2	6.6	7.0	7.4	7.8	8.1	8.5	8.9	9.3	9.7	10.1
400	7.8	8.5	9.3	10.1	10.9	11.6	12.4	13.2	14.0	14.7	15.5	16.3	17.1	17.8	18.6	19.4	20.2
600	11.6	12.8	14.0	15.1	16.3	17.4	18.6	19.8	20.9	22.1	23.3	24.4	25.6	26.7	27.9	29.1	30.2
800	15.5	17.1	18.6	20.2	21.7	23.3	24.8	26.4	27.9	29.5	31.0	32.6	34.1	35.7	37.2	38.8	40.3
1000	19.4	21.3	23.3	25.2	27.1	29.1	31.0	33.0	34.9	36.8	38.8	40.7	42.6	44.6	46.5	48.5	50.4
1200	23.3	25.6	27.9	30.2	32.6	34.9	37.2	39.5	41.9	44.2	46.5	48.8	51.2	53.5	55.8	58.1	60.5
1400	27.1	29.8	32.6	35.3	38.0	40.7	43.4	46.1	48.8	51.6	54.3	57.0	59.7	62.4	65.1	67.8	70.6
1600	31.0	34.1	37.2	40.3	43.4	46.5	49.6	52.7	55.8	58.9	62.0	65.1	68.2	71.3	74.4	77.5	80.6
1800	34.9	38.4	41.9	45.4	48.8	52.3	55.8	59.3	62.8	66.3	69.8	73.3	76.8	80.2	83.7	87.2	90.7
2000	38.8	42.6	46.5	50.4	54.3	58.1	62.0	65.9	69.8	73.7	77.5	81.4	85.3	89.2	93.0	96.9	100.8
2200	42.6	46.9	51.2	55.4	59.7	64.0	68.2	72.5	76.8	81.0	85.3	89.5	93.8	98.1	102.3	106.6	110.9
2400	46.5	51.2	55.8	60.5	65.1	69.8	74.4	79.1	83.7	88.4	93.0	97.7	102.3	107.0	111.6	116.3	120.9
2600	50.4	55.4	60.5	65.5	70.6	75.6	80.6	85.7	90.7	95.8	100.8	105.8	110.9	115.9	120.9	126.0	131.0
2800	54.3	59.7	65.1	70.6	76.0	81.4	86.8	92.3	97.7	103.1	108.5	114.0	119.4	124.8	130.3	135.7	141.1
3000	58.1	64.0	69.8	75.6	81.4	87.2	93.0	98.9	104.7	110.5	116.3	122.1	127.9	133.7	139.6	145.4	151.2

TABLE 9d ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE IV
Single Family, Two Story, Full Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating Degree Days																
	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000	7350	7700	8050	8400	8750	9100
100	2.2	2.4	2.6	2.8	3.1	3.3	3.5	3.7	3.9	4.1	4.4	4.6	4.8	5.0	5.2	5.5	5.7
200	4.4	4.8	5.2	5.7	6.1	6.5	7.0	7.4	7.9	8.3	8.7	9.2	9.6	10.0	10.5	10.9	11.3
400	8.7	9.6	10.5	11.3	12.2	13.1	14.0	14.8	15.7	16.6	17.4	18.3	19.2	20.1	20.9	21.8	22.7
600	13.1	14.4	15.7	17.0	18.3	19.6	20.9	22.2	23.6	24.9	26.2	27.5	28.8	30.1	31.4	32.7	34.0
800	17.4	19.2	20.9	22.7	24.4	26.2	27.9	29.7	31.4	33.1	34.9	36.6	38.4	40.1	41.9	43.6	45.4
1000	21.8	24.0	26.2	28.3	30.5	32.7	34.9	37.1	39.3	41.4	43.6	45.8	48.0	50.2	52.3	54.5	56.7
1200	26.2	28.8	31.4	34.0	36.6	39.3	41.9	44.5	47.1	49.7	52.3	55.0	57.6	60.2	62.8	65.4	68.0
1400	30.5	33.6	36.6	39.7	42.7	45.8	48.8	51.9	55.0	58.0	61.1	64.1	67.2	70.2	73.3	76.3	79.4
1600	34.9	38.4	41.9	45.4	48.8	52.3	55.8	59.3	62.8	66.3	69.8	73.3	76.8	80.2	83.7	87.2	90.7
1800	39.3	43.2	47.1	51.0	55.0	58.9	62.8	66.7	70.7	74.6	78.5	82.4	86.4	90.3	94.2	98.1	102.1
2000	43.6	48.0	52.3	56.7	61.1	65.4	69.8	74.1	78.5	82.9	87.2	91.6	95.9	100.3	104.7	109.0	113.4
2200	48.0	52.8	57.6	62.4	67.2	72.0	76.8	81.6	86.4	91.1	95.9	100.7	105.5	110.3	115.1	119.9	124.7
2400	52.3	57.6	62.8	68.0	73.3	78.5	83.7	89.0	94.2	99.4	104.7	109.9	115.1	120.4	125.6	130.8	136.1
2600	56.7	62.4	68.0	73.7	79.4	85.0	90.7	96.4	102.1	107.7	113.4	119.1	124.7	130.4	136.1	141.7	147.4
2800	61.1	67.2	73.3	79.4	85.5	91.6	97.7	103.8	109.9	116.0	122.1	128.2	134.3	140.4	146.5	152.6	158.7
3000	65.4	72.0	78.5	85.0	91.6	98.1	104.7	111.2	117.8	124.3	130.8	137.4	143.9	150.5	157.0	163.5	170.1

TABLE 9e ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE V
Apartments

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating Degree Days																
	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000	7350	7700	8050	8400	8750	9100
100	1.3	1.4	1.5	1.6	1.8	1.9	2.0	2.1	2.3	2.4	2.5	2.6	2.8	2.9	3.0	3.2	3.3
200	2.5	2.8	3.0	3.3	3.5	3.8	4.0	4.3	4.5	4.8	5.0	5.3	5.5	5.8	6.1	6.3	6.6
400	5.0	5.5	6.1	6.6	7.1	7.6	8.1	8.6	9.1	9.6	10.1	10.6	11.1	11.6	12.1	12.6	13.1
600	7.6	8.3	9.1	9.8	10.6	11.4	12.1	12.9	13.6	14.4	15.1	15.9	16.6	17.4	18.2	18.9	19.7
800	10.1	11.1	12.1	13.1	14.1	15.1	16.1	17.2	18.2	19.2	20.2	21.2	22.2	23.2	24.2	25.2	26.2
1000	12.6	13.9	15.1	16.4	17.7	18.9	20.2	21.4	22.7	24.0	25.2	26.5	27.7	29.0	30.3	31.5	32.8
1200	15.1	16.6	18.2	19.7	21.2	22.7	24.2	25.7	27.2	28.8	30.3	31.8	33.3	34.8	36.3	37.8	39.3
1400	17.7	19.4	21.2	23.0	24.7	26.5	28.2	30.0	31.8	33.5	35.3	37.1	38.8	40.6	42.4	44.1	45.9
1600	20.2	22.2	24.2	26.2	28.2	30.3	32.3	34.3	36.3	38.3	40.4	42.4	44.4	46.4	48.4	50.4	52.5
1800	22.7	25.0	27.2	29.5	31.8	34.1	36.3	38.6	40.9	43.1	45.4	47.7	49.9	52.2	54.5	56.8	59.0
2000	25.2	27.7	30.3	32.8	35.3	37.8	40.4	42.9	45.4	47.9	50.4	53.0	55.5	58.0	60.5	63.1	65.6
2200	27.7	30.5	33.3	36.1	38.8	41.6	44.4	47.2	49.9	52.7	55.5	58.3	61.0	63.8	66.6	69.4	72.1
2400	30.3	33.3	36.3	39.3	42.4	45.4	48.4	51.5	54.5	57.5	60.5	63.6	66.6	69.6	72.6	75.7	78.7
2600	32.8	36.1	39.3	42.6	45.9	49.2	52.5	55.7	59.0	62.3	65.6	68.9	72.1	75.4	78.7	82.0	85.3
2800	35.3	38.8	42.4	45.9	49.4	53.0	56.5	60.0	63.6	67.1	70.6	74.2	77.7	81.2	84.7	88.3	91.8
3000	37.8	41.6	45.4	49.2	53.0	56.8	60.5	64.3	68.1	71.9	75.7	79.5	83.2	87.0	90.8	94.6	98.4

TABLE 9f ANNUAL MBTU USAGE (MILLIONS BTU'S) - PROTOTYPE VI
Mobile Homes

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating Degree Days																
	3500	3850	4200	4550	4900	5250	5600	5950	6300	6650	7000	7350	7700	8050	8400	8750	9100
100	3.7	4.0	4.4	4.8	5.1	5.5	5.9	6.2	6.6	7.0	7.3	7.7	8.1	8.4	8.8	9.2	9.5
200	7.3	8.1	8.8	9.5	10.3	11.0	11.7	12.5	13.2	13.9	14.7	15.4	16.1	16.9	17.6	18.3	19.1
400	14.7	16.1	17.6	19.1	20.5	22.0	23.5	24.9	26.4	27.9	29.3	30.8	32.3	33.8	35.2	36.7	38.2
600	22.0	24.2	26.4	28.6	30.8	33.0	35.2	37.4	39.6	41.8	44.0	46.2	48.4	50.6	52.8	55.0	57.2
800	29.3	32.3	35.2	38.2	41.1	44.0	47.0	49.9	52.8	55.8	58.7	61.6	64.6	67.5	70.4	73.4	76.3
1000	36.7	40.4	44.0	47.7	51.4	55.0	58.7	62.4	66.0	69.7	73.4	77.0	80.7	84.4	88.0	91.7	95.4
1200	44.0	48.4	52.8	57.2	61.6	66.0	70.4	74.8	79.2	83.6	88.0	92.4	96.8	101.3	105.7	110.1	114.5
1400	51.4	56.5	61.6	66.8	71.9	77.0	82.2	87.3	92.4	97.6	102.7	107.9	113.0	118.1	123.3	128.4	133.5
1600	58.7	64.6	70.4	76.3	82.2	88.0	93.9	99.8	105.7	111.5	117.4	123.3	129.1	135.0	140.9	146.7	152.6
1800	66.0	72.6	79.2	85.8	92.4	99.0	105.7	112.3	118.9	125.5	132.1	138.7	145.3	151.9	158.5	165.1	171.7
2000	73.4	80.7	88.0	95.4	102.7	110.1	117.4	124.7	132.1	139.4	146.7	154.1	161.4	168.8	176.1	183.4	190.8
2200	80.7	88.8	96.8	104.9	113.0	121.1	129.1	137.2	145.3	153.3	161.4	169.5	177.6	185.6	193.7	201.8	209.8
2400	88.0	96.8	105.7	114.5	123.3	132.1	140.9	149.7	158.5	167.3	176.1	184.9	193.7	202.5	211.3	220.1	228.9
2600	95.4	104.9	114.5	124.0	133.5	143.1	152.6	162.1	171.7	181.2	190.8	200.3	209.8	219.4	228.9	238.5	248.0
2800	102.7	113.0	123.3	133.5	143.8	154.1	164.3	174.6	184.9	195.2	205.4	215.7	226.0	236.3	246.5	256.8	267.1
3000	110.1	121.1	132.1	143.1	154.1	165.1	176.1	187.1	198.1	209.1	220.1	231.1	242.1	253.1	264.1	275.1	286.1

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES

Community	Heating Degree Days	Cooling Degree Days	HUD MPS Zone
IDAHO			
Nampa, ID	5,873	692	7
OREGON			
Albany, OR	4,715	247	5
Ashland, OR	5,211	350	6
Astoria, OR	5,056	22	5
Baker City, OR	7,186	267	7
Bandon, OR	4,666	5	4
Bend, OR	7,042	147	8
Brookings, OR	3,978	17	4
Burns, OR	7,785	218	8
Corvalis, OR	4,715	247	5
Cottage Grove, OR	4,938	161	5
Dallas, OR	5,018	222	5
Eagle Point, OR	5,034	446	6
Elgin, OR	6,444	217	7
Enterprise, OR	7,364	180	7
Estacada, OR	4,856	205	6
Eugene, OR	4,786	242	5
Florence, OR	4,809	20	5
Gladstone, OR	4,132	475	6
Gold Beach, OR	4,191	11	4
Grants Pass, OR	4,735	418	4
Gresham, OR	4,132	475	4
Harrisburg, OR	5,501	139	6
Hermiston, OR	5,045	727	6
Hood River, OR	5,533	298	7
Jacksonville, OR	4,539	711	6
John Day, OR	6,377	349	6
Klamath Falls, OR	6,388	413	7
La Grande, OR	6,416	419	7
Lakeview, OR	7,021	313	8
Lincoln City, OR	5,007	11	5

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES (Continued)

Community	Heating Degree Days	Cooling Degree Days	HUD MPS Zone
OREGON			
Madras, OR	6,019	314	8
Medford, OR	4,539	711	6
Molalla, OR	4,847	261	6
Myrtle Creek, OR	4,392	344	5
Myrtle Point, OR	4,709	8	4
Newport, OR	4,996	8	5
Nyssa, OR	5,733	862	7
Oakridge, OR	5,142	214	2
Ontario, OR	6,078	823	5
Pendleton, OR	5,406	529	6
Prineville, OR	6,782	154	8
Redmond, OR	6,274	297	8
Reedsport, OR	4,544	14	5
Roseburg, OR	4,018	516	5
Salem, OR	4,784	257	6
Sandy, OR	4,132	475	6
Shady Cove, OR	5,034	446	6
Sherwood, OR	4,132	475	6
Springfield, OR	4,786	242	6
Stayton, OR	4,778	247	6
Sweet Home, OR	4,855	182	6
The Dalles, OR	4,788	794	7
Tillamook, OR	5,271	8	5
Tualatin, OR	4,132	475	6
Umatilla, OR	5,508	489	6
Veneta, OR	4,591	325	5
White City, OR	5,034	446	6
Winston, OR	4,018	516	5

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES (Continued)

Community	Heating Degree Days	Cooling Degree Days	HUD MPS Zone
WASHINGTON			
Aberdeen/Hoquiam, WA	5,161	34	6
Arlington, WA	5,199	121	6
Battle Ground, WA	5,165	160	6
Bellingham, WA	5,400	67	6
Castle Rock, WA	5,082	164	6
Chehalis, WA	4,500	255	8
Chelan, WA	5,997	693	8
Cheney, WA	6,820	394	7
Clarkston, WA	6,017	432	7
Cle Elum, WA	6,810	275	8
Colville, WA	6,965	360	6
Davenport, WA	7,450	293	7
Dayton, WA	5,547	561	7
Eatonville, WA	5,626	93	6
Enumclaw, WA	5,626	93	6
Ephrata, WA	5,836	900	7
Forks, WA	5,707	32	7
Lakewood, WA	4,650	167	6
Leavenworth, WA	6,717	421	6
Longview, WA	4,900	148	6
Marysville, WA	5,199	121	7
Monroe, WA	5,195	143	6
Montesano, WA	5,222	127	6
Newport, WA	7,189	240	8
North Bend, WA	5,393	101	6
Okanogan/Omak, WA	6,737	564	8
Oroville, WA	6,226	471	8
Othello, WA	6,236	400	7
Pasco, WA	4,731	909	7
Port Angeles, WA	5,586	42	6

TABLE 10 HEATING/COOLING DEGREE DAYS AND MPS ZONES (Continued)

Community	Heating Degree Days	Cooling Degree Days	HUD MPS Zone
WASHINGTON			
Port Townsend, WA	5,124	40	6
Puyallup, WA	4,991	153	6
Raymond, WA	5,768	24	6
Seattle, WA	4,797	173	7
Sedro-Woolley, WA	5,213	65	6
Sequim, WA	6,305	9	6
Shelton, WA	5,227	147	6
South Bend, WA	5,768	24	6
Spokane, WA	6,820	394	8
Toppenish, WA	5,553	779	7
Tumwater, WA	5,531	97	6
Vancouver, WA	4,990	197	6
Walla Walla, WA	4,882	957	7
Wapato, WA	5,553	779	7
Washougal, WA	5,725	104	6
Wenatchee, WA	5,533	832	7
White Salmon, WA	7,176	201	7
Woodland, WA	5,165	160	6
Yakima, WA	6,104	431	7

TABLE 11 FUEL REQUIRED TO PRODUCE 1 MBTU

Type of Fuel	Amount Needed To Produce 1 MBTU
Natural Gas	1 MCF (1,000 cu. ft.)
Propane	10.2 Gallons
Fuel Oil	7.04 Gallons

TABLE 12 HEATING FUEL COST

Type of Fuel	Charge per unit
Natural Gas	$8.74
Propane	$1.67
Fuel Oil #2	$1.49

TABLE 13 MPS HEATING ZONE CONVERSION FACTORS

	Dwelling Prototypes					
	I	II	III	IV	V	VI
HUD MPS Heating Zone	Single Story No Basement	Single Story Full Basement	Double Story No Basement	Double Story Full Basement	Apart-ments	Mobile Homes
1						
2						
3						
4	1.04	1.05	1.04	1.04	1.04	1.04
5	1.06	1.08	1.07	1.06	1.10	1.06
6	1.14	1.20	1.17	1.15	1.27	1.16
7	1.13	1.18	1.16	1.14	1.24	1.15
8	1.00	1.00	1.00	1.00	1.00	1.00

D. SPACE HEATING (ELECTRICITY) CONSUMPTION/COST CALCULATIONS

The procedure for calculating electrical consumption and costs for space heating (where electricity is unmetered or otherwise unmeasured) is similar to the procedure used for fossil fuels. Tables 14a through 14f are used.

1. Select from these tables the dwelling prototype most similar to the quarters at issue.

2. Determine the annual kilowatt hour (KwH) consumption by finding the appropriate columns for square feet and HDD (heating degree days). Note: HDD's for the nearest established communities may be found in Table 10.

3. Divide the annual KwH by 12 to determine the monthly average electrical consumption.

4. Adjust for HUD MPS Heating Zone, using the conversion factors in Table 13.

5. Adjust for heat pump (if applicable).

6. Determine the appropriate charge per KwH from the table below. **Do not calculate the total cost of electricity in steps such as the first 500 KwH costs so much, then the second 500 KwH costs so much etc.**

KwH Consumed Per Month	Charge per KwH
1 -500	$.071
501 - 1,000	$.064
1,001 -1,500	$.062
Over 1,500	$.061

7. Compute the monthly charge for space heating by multiplying the appropriate charge per KwH times the number of KwH consumed per month.

8. Example: The average monthly electric heating charge for a single family, 2,100 square foot, two story, no basement home located near Bend, OR is computed as follows:

   a. Step 1. Select the table (table 14a through f) that most closely describes the quarters unit at issue. In this case, table 14c (single family, two story, no basement - prototype III) should be selected.

   b. Step 2. Determine from table 14c the annual KwH consumption appropriate for the heating degree days (HDD) and the gross square footage of the house in this example. Use the table as follows:

      1) Find the number of heating degree days for the established community in which the quarters is located. Table 10 (which contains the HDD for established communities in the Oregon/Washington survey region) shows that Bend, OR has 7,042 HDD. In table 14c, the

number of HDD's in Bend, OR (7,042) lies between the column headed 7,000 and the column headed 7,500. Round down to 7,000 HDD.

2) In table 14c, 2,100 square feet (the size of the house used in this example) lies between 2,000 and 2,200 square feet. Round 2,100 down to 2,000 square feet.

3) From table 14c (2,000 square feet and 7,000 HDD) the annual KwH consumption rate is 18,173 KwH.

c. Step 3. Calculate the monthly KwH consumption by dividing the annual KwH by 12 (months). In this instance, the monthly consumption is 1,514.42 KwH (18,173 / 12 = 1,514.42).

d. Step 4, HUD MPS Zone adjustment. The HUD MPS zone adjustment is made as follows:

1) Use Table 10 to find the HUD MPS zone for the community at issue. In this manner, Bend, OR is found to be in HUD MPS zone 8.

2) In Table 13, determine the adjustment factor for the appropriate dwelling type and MPS zone. The factor for housing prototype III in HUD MPS zone 8 is 1.00.

3) Multiply the monthly electric consumption (as computed in paragraph 8c, above) times the HUD MPS adjustment factor (1,514.42 x 1.00 = 1,514.42 KwH per month).

e. Step 5, **Adjustment for heat pump**. The process described above is used for computing the electrical consumption for heating with a straight resistance heating system. Where a dwelling is heated with an electric heat pump, the straight resistance heating consumption (1,514.42 KwH in this example) should be multiplied by a factor of .75, which represents the greater efficiency of the heat pump. In this example, the monthly electric consumption for a heat pump as the heating source would be 1,135.82 (1,514.42 x .75 = 1,135.82).

f. Step 6. The final step is to compute the monthly charge for the electricity consumed. This is done by multiplying the charge per KwH times the KwH consumed per month. The appropriate charge per KwH may be found in the table below.

KwH Consumed Per Month	Charge per KwH
1 -500	$.071
501 - 1,000	$.064
1,001 - 1,500	$.062
Over 1,500	$.061

In this example, the average monthly consumption (1,514.42 KwH) for resistance heat falls in the "Over 1,500" KwH per month consumption category; the appropriate charge is $0.061 per KwH. The average monthly consumption (1,135.82 KwH) for a heat pump falls in the "1,001 – 1,500" KwH per month consumption category; and the appropriate unit charge is $0.062 per KwH.

Therefore, the monthly electric heating charge for the house used in this example is computed as follows:

Resistance heat: 1,514.42 KwH x $.061 = $92.38

Heat pump: 1,135.82 KwH x $.062 = $70.42

E. SPACE COOLING CONSUMPTION/COST

Space cooling costs are calculated in the same manner as for electric space heating except that CDD (Cooling Degree Day) values are used in lieu of HDD values. CDD values for the Nearest Established Communities are found in Table 10. Additionally, only Tables 14a through 14f are used in calculating cooling energy consumption. Briefly, the steps are as follows.

1. Select from Tables 14a through 14f, the table that most closely describes the quarters unit at issue.

2. Based on the size of the dwelling (square feet) and the number of CDD (from Table 10), use the appropriate Table (14a-f) to determine the annual KwH consumption.

3. Divide the annual KwH consumption by 12 (months) to determine the average number of KwH consumed per month.

4. Apply the HUD MPS Zone adjustment factor.

5. Apply the Coefficient of Performance (COP) adjustment.

6. Determine the appropriate charge per KwH from the table below.

KwH Consumed Per Month	Charge per KwH
1 - 500	$.071
501 - 1,000	$.064
1,001 - 1,500	$.062
Over 1,500	$.061

7. Compute the monthly charge for space cooling by multiplying the appropriate charge per KwH times the number of KwH consumed per month.

8. Example: Compute the average monthly electric cooling charge for a 1,275 SQFT mobile home near Yakima, WA.

   a. STEP 1: Table Selection. Select the table (table 14a through 14f), which most closely describes the quarters unit at issue. Table 14f (Mobile Home - prototype VI) should be selected.

   b. STEP 2: Annual KwH Consumption. Determine from table 14f the annual KwH consumption appropriate for the cooling degree days (CDD) and the gross square footage of the mobile home in this example. Use the table as follows:

      1) Find the number of cooling degree days for the established community closest to the quarters. Table 10 (which contains the CDD for established communities in the Oregon/Washington survey region) shows that Yakima, WA has 431 CDD. In table 14f, 431 CDD lies between the columns headed 400 and 500. Round down to 400 CDD.

      2) In table 14f, 1,275 square feet (the size of the mobile home used in this example) lies between 1,200 and 1,400 square feet. Round down to 1,200 square feet.

      3) From table 14f (1,200 square feet and 400 CDD) the annual KwH consumption rate is 1,179 KwH.

   c. STEP 3: Monthly Consumption. Calculate the monthly KwH consumption by dividing the annual KwH consumption by 12 (months). In this instance, the monthly consumption is 98.25 KwH rounded (1,179 / 12 = 98.25).

   d. STEP 4: HUD MPS Zone Adjustment. The HUD MPS Zone adjustment is made as follows:

      1) Use Table 10 to find the HUD MPS zone for the community at issue. In this manner, Yakima, WA is found to be in HUD MPS Zone 7.

      2) In Table 15, determine the adjustment factor for the appropriate dwelling unit type and MPS zone. The factor for housing prototype VI in HUD MPS zone 7 is 2.98.

3) Multiply the monthly electric consumption (as computed in paragraph 8c, above) times the HUD MPS Zone adjustment factor 98.25 x 2.98 = 292.79 KwH per month.

e. STEP 5: Adjustment for Coefficient of Performance (COP). This adjustment accounts for the differences in the efficiencies of evaporative (swamp) and refrigerated air central cooling systems.

1) Evaporative (swamp) cooling. For a central evaporative cooling system the adjusted KwH (computed in Step 4, above) is divided by a factor of 6.66. In this example, the monthly KwH requirement for central evaporative cooling is computed as 292.79 / 6.66 = 43.96 KwH per month.

2) Refrigerated air cooling. For a central refrigerated air cooling system, the adjusted KwH (computed in step 4, above) is divided by a factor of 2. In this example, the monthly KwH requirement for central refrigerated air cooling is computed as 292.79 / 2 = 146.40 KwH per month.

f. STEP 6: Monthly Charge. The final step is to compute the monthly charge for the electricity consumed. This is done by multiplying the charge per KwH times the KwH consumed per month. The appropriate charge per KwH may be found in the table below.

KwH Consumed Per Month	Charge per KwH
1 - 500	$.071
501 - 1,000	$.064
1,001 - 1,500	$.062
Over 1,500	$.061

In this example, the average monthly consumption (43.96 KwH) for evaporative cooling falls in the "1 – 500" KwH consumption range. And (146.40 KwH) for refrigerated cooling falls in the "1 – 500" KwH consumption range. The appropriate charge will be $0.071 per KwH for evaporative cooling and $.071 for refrigerated cooling.

Therefore, the monthly charges for cooling the mobile home used in this example would be computed as follows.

Evaporative cooling: 43.96 KwH x $0.071 = $3.12

Refrigerated cooling: 146.40 KwH x $0.071 = $10.39

9. Gas powered Central Air Conditioning Units. If the central air conditioning unit is gas operated (natural gas or propane), the charge is computed as follows:

a. Compute the KwH consumption in same manner as shown in steps 1 through 4 above (Note: the calculations through step 4 produce 292.79 KwH per month).

b. Calculate the Coefficient of Performance (COP) adjustment in step 5 above for refrigerated air conditioning; that is, divide the number of KwH in paragraph 9a, above (292.79 KwH) by the COP (2); for example 292.79 / 2 = 146.40 KwH.

c. Convert the monthly KwH to MBTU's by dividing the KwH calculated in paragraph 9b, above by 234.4. Thus, 146.40 KwH / 234.4 (KwH per MBTU) = .62 MBTU's. [It takes 234.4 Kilowatts to generate 1 MBTU]

d. Calculate the volumes of natural gas and propane needed to produce .62 MBTU's. This is done as follows.

1) Natural Gas. For central air conditioning units that operate on natural gas, multiply the MBTU's calculated in paragraph 9c above by 1 MCF (.62 MBTU's x 1 MCF = .62 MCF). Thus, .62 MCF of natural gas would be required per month (annual average) to cool the dwelling in this example.

2) Propane. For central air conditioning units that operate on propane gas, multiply the MBTU's calculated in paragraph 9c above by 10.2 gallons (.62 MBTU's x 10.2 gallons = 6.32 gallons). Thus, 6.32 gallons of propane would be required per month (annual average) to cool the dwelling in this example.

e. Calculate the monthly charge for natural gas or propane consumed. This is done by multiplying the volume of fuel consumed by the unit cost of the fuel. These calculations are shown below.

Natural gas: .62 MCF x $8.74 per MCF = $5.42 (rounded) per month.

Propane gas: 6.32 gallons x $1.67 per gallon = $10.55 (rounded) per month.

TABLE 14a ANNUAL KWH USAGE (ELECTRIC HEATING/COOLING) - TYPE I
Single Family, One Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating or Cooling Degree Days																
	100	200	300	400	500	600	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
100	15	31	46	62	77	92	540	617	694	771	848	925	1002	1079	1156	1233	1310
200	31	62	92	123	154	185	1079	1233	1387	1541	1696	1850	2004	2158	2312	2466	2621
400	62	123	185	247	308	370	2158	2466	2775	3083	3391	3700	4008	4316	4624	4933	5241
600	92	185	277	370	462	555	3237	3700	4162	4624	5087	5549	6012	6474	6937	7399	7862
800	123	247	370	493	617	740	4316	4933	5549	6166	6783	7399	8016	8632	9249	9866	10482
1000	154	308	462	617	771	925	5395	6166	6937	7707	8478	9249	10020	10790	11561	12332	13103
1200	185	370	555	740	925	1110	6474	7399	8324	9249	10174	11099	12024	12949	13873	14798	15723
1400	216	432	647	863	1079	1295	7553	8632	9711	10790	11869	12949	14028	15107	16186	17265	18344
1600	247	493	740	987	1233	1480	8632	9866	11099	12332	13565	14798	16031	17265	18498	19731	20964
1800	277	555	832	1110	1387	1665	9711	11099	12486	13873	15261	16648	18035	19423	20810	22197	23585
2000	308	617	925	1233	1541	1850	10790	12332	13873	15415	16956	18498	20039	21581	23122	24664	26205
2200	339	678	1017	1357	1696	2035	11869	13565	15261	16956	18652	20348	22043	23739	25435	27130	28826
2400	370	740	1110	1480	1850	2220	12949	14798	16648	18498	20348	22197	24047	25897	27747	29597	31446
2600	401	802	1202	1603	2004	2405	14028	16031	18035	20039	22043	24047	26051	28055	30059	32063	34067
2800	432	863	1295	1726	2158	2590	15107	17265	19423	21581	23739	25897	28055	30213	32371	34529	36687
3000	462	925	1387	1850	2312	2775	16186	18498	20810	23122	25435	27747	30059	32371	34683	36996	39308

TABLE 14b ANNUAL KWH USAGE (ELECTRIC HEATING/COOLING) - TYPE II
Single Family, Single Story, Full Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating or Cooling Degree Days																
	100	200	300	400	500	600	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
100	11	22	33	44	56	67	389	444	500	555	611	667	722	778	833	889	944
200	22	44	67	89	111	133	778	889	1000	1111	1222	1333	1444	1555	1666	1777	1888
400	44	89	133	178	222	267	1555	1777	2000	2222	2444	2666	2888	3110	3333	3555	3777
600	67	133	200	267	333	400	2333	2666	2999	3333	3666	3999	4332	4666	4999	5332	5665
800	89	178	267	355	444	533	3110	3555	3999	4443	4888	5332	5777	6221	6665	7110	7554
1000	111	222	333	444	555	667	3888	4443	4999	5554	6110	6665	7221	7776	8332	8887	9442
1200	133	267	400	533	667	800	4666	5332	5999	6665	7332	7998	8665	9331	9998	10664	11331
1400	156	311	467	622	778	933	5443	6221	6998	7776	8554	9331	10109	10887	11664	12442	13219
1600	178	355	533	711	889	1066	6221	7110	7998	8887	9776	10664	11553	12442	13330	14219	15108
1800	200	400	600	800	1000	1200	6998	7998	8998	9998	10998	11997	12997	13997	14997	15997	16996
2000	222	444	667	889	1111	1333	7776	8887	9998	11109	12220	13330	14441	15552	16663	17774	18885
2200	244	489	733	978	1222	1466	8554	9776	10998	12220	13442	14663	15885	17107	18329	19551	20773
2400	267	533	800	1066	1333	1600	9331	10664	11997	13330	14663	15997	17330	18663	19996	21329	22662
2600	289	578	866	1155	1444	1733	10109	11553	12997	14441	15885	17330	18774	20218	21662	23106	24550
2800	311	622	933	1244	1555	1866	10887	12442	13997	15552	17107	18663	20218	21773	23328	24883	26439
3000	333	667	1000	1333	1666	2000	11664	13330	14997	16663	18329	19996	21662	23328	24995	26661	28327

TABLE 14c ANNUAL KWH USAGE (ELECTRIC HEATING/COOLING) - TYPE III
Single Family, Two Story, Partial (Less Than 50%) or No Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating or Cooling Degree Days																
	100	200	300	400	500	600	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
100	13	26	39	52	65	78	454	519	584	649	714	779	844	909	974	1038	1103
200	26	52	78	104	130	156	909	1038	1168	1298	1428	1558	1688	1817	1947	2077	2207
400	52	104	156	208	260	312	1817	2077	2337	2596	2856	3115	3375	3635	3894	4154	4414
600	78	156	234	312	389	467	2726	3115	3505	3894	4284	4673	5063	5452	5841	6231	6620
800	104	208	312	415	519	623	3635	4154	4673	5192	5712	6231	6750	7269	7789	8308	8827
1000	130	260	389	519	649	779	4543	5192	5841	6490	7140	7789	8438	9087	9736	10385	11034
1200	156	312	467	623	779	935	5452	6231	7010	7789	8567	9346	10125	10904	11683	12462	13241
1400	182	363	545	727	909	1090	6361	7269	8178	9087	9995	10904	11813	12721	13630	14539	15447
1600	208	415	623	831	1038	1246	7269	8308	9346	10385	11423	12462	13500	14539	15577	16616	17654
1800	234	467	701	935	1168	1402	8178	9346	10515	11683	12851	14019	15188	16356	17524	18693	19861
2000	260	519	779	1038	1298	1558	9087	10385	11683	12981	14279	15577	16875	18173	19471	20770	22068
2200	286	571	857	1142	1428	1713	9995	11423	12851	14279	15707	17135	18563	19991	21419	22846	24274
2400	312	623	935	1246	1558	1869	10904	12462	14019	15577	17135	18693	20250	21808	23366	24923	26481
2600	338	675	1013	1350	1688	2025	11813	13500	15188	16875	18563	20250	21938	23625	25313	27000	28688
2800	363	727	1090	1454	1817	2181	12721	14539	16356	18173	19991	21808	23625	25443	27260	29077	30895
3000	389	779	1168	1558	1947	2337	13630	15577	17524	19471	21419	23366	25313	27260	29207	31154	33101

TABLE 14d ANNUAL KWH USAGE (ELECTRIC HEATING/COOLING) - TYPE IV
Single Family, Two Story, Full Basement

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating or Cooling Degree Days																
	100	200	300	400	500	600	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
100	15	29	44	58	73	88	511	584	657	730	803	876	949	1022	1095	1168	1241
200	29	58	88	117	146	175	1022	1168	1314	1460	1606	1752	1898	2045	2191	2337	2483
400	58	117	175	234	292	350	2045	2337	2629	2921	3213	3505	3797	4089	4381	4673	4965
600	88	175	263	350	438	526	3067	3505	3943	4381	4819	5257	5695	6134	6572	7010	7448
800	117	234	350	467	584	701	4089	4673	5257	5841	6426	7010	7594	8178	8762	9346	9930
1000	146	292	438	584	730	876	5111	5841	6572	7302	8032	8762	9492	10223	10953	11683	12413
1200	175	350	526	701	876	1051	6134	7010	7886	8762	9638	10515	11391	12267	13143	14019	14896
1400	204	409	613	818	1022	1227	7156	8178	9200	10223	11245	12267	13289	14312	15334	16356	17378
1600	234	467	701	935	1168	1402	8178	9346	10515	11683	12851	14019	15188	16356	17524	18693	19861
1800	263	526	789	1051	1314	1577	9200	10515	11829	13143	14458	15772	17086	18401	19715	21029	22343
2000	292	584	876	1168	1460	1752	10223	11683	13143	14604	16064	17524	18985	20445	21905	23366	24826
2200	321	643	964	1285	1606	1928	11245	12851	14458	16064	17670	19277	20883	22490	24096	25702	27309
2400	350	701	1051	1402	1752	2103	12267	14019	15772	17524	19277	21029	22782	24534	26286	28039	29791
2600	380	759	1139	1519	1898	2278	13289	15188	17086	18985	20883	22782	24680	26579	28477	30375	32274
2800	409	818	1227	1636	2045	2453	14312	16356	18401	20445	22490	24534	26579	28623	30668	32712	34757
3000	438	876	1314	1752	2191	2629	15334	17524	19715	21905	24096	26286	28477	30668	32858	35049	37239

TABLE 14e ANNUAL KWH USAGE (ELECTRIC HEATING/COOLING) - TYPE V
Apartments

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating or Cooling Degree Days																
	100	200	300	400	500	600	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
100	8	17	25	34	42	51	296	338	380	422	465	507	549	591	633	676	718
200	17	34	51	68	84	101	591	676	760	845	929	1014	1098	1182	1267	1351	1436
400	34	68	101	135	169	203	1182	1351	1520	1689	1858	2027	2196	2365	2534	2703	2872
600	51	101	152	203	253	304	1774	2027	2280	2534	2787	3041	3294	3547	3801	4054	4307
800	68	135	203	270	338	405	2365	2703	3041	3378	3716	4054	4392	4730	5068	5405	5743
1000	84	169	253	338	422	507	2956	3378	3801	4223	4645	5068	5490	5912	6334	6757	7179
1200	101	203	304	405	507	608	3547	4054	4561	5068	5574	6081	6588	7095	7601	8108	8615
1400	118	236	355	473	591	709	4139	4730	5321	5912	6503	7095	7686	8277	8868	9459	10051
1600	135	270	405	541	676	811	4730	5405	6081	6757	7432	8108	8784	9459	10135	10811	11486
1800	152	304	456	608	760	912	5321	6081	6841	7601	8361	9122	9882	10642	11402	12162	12922
2000	169	338	507	676	845	1014	5912	6757	7601	8446	9291	10135	10980	11824	12669	13514	14358
2200	186	372	557	743	929	1115	6503	7432	8361	9291	10220	11149	12078	13007	13936	14865	15794
2400	203	405	608	811	1014	1216	7095	8108	9122	10135	11149	12162	13176	14189	15203	16216	17230
2600	220	439	659	878	1098	1318	7686	8784	9882	10980	12078	13176	14274	15372	16470	17568	18666
2800	236	473	709	946	1182	1419	8277	9459	10642	11824	13007	14189	15372	16554	17736	18919	20101
3000	253	507	760	1014	1267	1520	8868	10135	11402	12669	13936	15203	16470	17736	19003	20270	21537

TABLE 14f ANNUAL KWH USAGE (ELECTRIC HEATING/COOLING) - TYPE VI
Mobile Homes

BASELINE CITY, Madras, Oregon

Gross Square Feet	Heating or Cooling Degree Days																
	100	200	300	400	500	600	3500	4000	4500	5000	5500	6000	6500	7000	7500	8000	8500
100	25	49	74	98	123	147	860	983	1106	1228	1351	1474	1597	1720	1843	1965	2088
200	49	98	147	197	246	295	1720	1965	2211	2457	2702	2948	3194	3440	3685	3931	4177
400	98	197	295	393	491	590	3440	3931	4422	4914	5405	5896	6388	6879	7370	7862	8353
600	147	295	442	590	737	884	5159	5896	6633	7370	8107	8845	9582	10319	11056	11793	12530
800	197	393	590	786	983	1179	6879	7862	8845	9827	10810	11793	12775	13758	14741	15724	16706
1000	246	491	737	983	1228	1474	8599	9827	11056	12284	13512	14741	15969	17198	18426	19654	20883
1200	295	590	884	1179	1474	1769	10319	11793	13267	14741	16215	17689	19163	20637	22111	23585	25059
1400	344	688	1032	1376	1720	2064	12038	13758	15478	17198	18917	20637	22357	24077	25797	27516	29236
1600	393	786	1179	1572	1965	2359	13758	15724	17689	19654	21620	23585	25551	27516	29482	31447	33413
1800	442	884	1327	1769	2211	2653	15478	17689	19900	22111	24322	26534	28745	30956	33167	35378	37589
2000	491	983	1474	1965	2457	2948	17198	19654	22111	24568	27025	29482	31939	34395	36852	39309	41766
2200	540	1081	1621	2162	2702	3243	18917	21620	24322	27025	29727	32430	35132	37835	40537	43240	45942
2400	590	1179	1769	2359	2948	3538	20637	23585	26534	29482	32430	35378	38326	41274	44223	47171	50119
2600	639	1278	1916	2555	3194	3833	22357	25551	28745	31939	35132	38326	41520	44714	47908	51102	54296
2800	688	1376	2064	2752	3440	4127	24077	27516	30956	34395	37835	41274	44714	48154	51593	55033	58472
3000	737	1474	2211	2948	3685	4422	25797	29482	33167	36852	40537	44223	47908	51593	55278	58963	62649

TABLE 15 MPS COOLING ZONE CONVERSION FACTORS

	Dwelling Prototypes					
	I	II	III	IV	V	VI
HUD MPS Heating Zone	Single Story No Basement	Single Story Full Basement	Double Story No Basement	Double Story Full Basement	Apart-ments	Mobile Homes
1						
2						
3						
4	1.72	1.42	1.60	1.64	1.27	3.12
5	1.10	0.80	0.98	1.02	0.65	2.01
6	1.85	1.56	1.73	1.78	1.41	3.36
7	1.48	1.18	1.36	1.40	1.03	2.98
8	1.57	1.27	1.45	1.49	1.12	2.85

F. NON-SPACE HEATING/COOLING ENERGY CONSUMPTION/COST

The examples in the preceding sections (VI.C, VI.D and VI.E) dealt with the charges for space heating and cooling. However, to compute **total** energy consumption charges, the costs for energy consumed by lights, equipment, and appliances (Government **and** tenant owned) must be determined and added to the heating and cooling charges.

1. **Consumption**. Electric non-space heating/cooling consumption and cost estimates include electricity used by small appliances, lights, radios, television, refrigerators, ranges, washers, dryers, etc. These items, and their associated consumption levels, are shown in Table 16. It is assumed that every government quarter uses furnace fan, television/radio, lights, and miscellaneous small appliances. Be sure to add these items from Table 16 in addition to any other applicable items in determining the total consumption.

   To use Table 16, first, determine the finished floor space square footage range within which a specific quarters unit falls. Then, using the values in Table 16, add the KwH consumed by each appliance or equipment item which is present in the quarters unit. If a housing unit has more than one (1) refrigerator, freezer, room (window) air conditioner, or space heater, multiply the KwH shown in the table times the number of refrigerators, freezers, room air conditioners, or space heaters that are present in the quarters unit to determine the total monthly KwH consumption for these appliances.

   There may be instances where appliances are fueled by fossil fuels rather than by electricity. Table 16a provides monthly consumption (in MCF or gallons of fuel) for the most common of these.

   If an appliance listed in Table 16 or Table 16a is not present in the quarters unit at issue, do not include its monthly energy consumption when computing the total energy consumed by equipment and appliances.

2. **Cost**. The cost of electricity or fossil fuel consumed by appliances and equipment is easily computed by multiplying the total monthly consumption (as determined in the preceding paragraphs) times the appropriate charge per KwH, MCF or gallon. These unit charges are shown in Table 17.

TABLE 16 MONTHLY KwH USAGE: APPLIANCES AND EQUIPMENT

Appliance/ Equipment	Gross Square Feet of Living Space									
	Under 301	301-500	501-700	701-1,100	1,101-1,300	1,301-1,500	1,501-1,900	1,901-2,100	2,101-2,500	Over 2,500
Hot water heater	130	130	245	245	370	370	480	480	600	705
Stove / Microwave	45	45	50	50	55	55	60	60	65	70
Refrigerator 1/	45	50	50	50	85	85	85	85	85	85
Clothes washer	20	35	35	35	45	45	45	55	55	65
Clothes dryer	15	15	25	25	35	35	35	35	40	50
Dishwasher	35	35	45	45	60	60	70	70	80	95
Freezer 1/	70	70	70	70	70	70	70	70	70	70
Furnace fan	15	15	20	20	20	25	25	30	30	35
Room air conditioner	65	65	65	65	65	65	65	65	65	65
Television / radio	5	5	10	10	20	20	20	20	25	25
Lights	50	55	75	80	90	90	95	100	120	120
Space heater (portable) 1/	130	130	130	130	130	130	130	130	130	130
Misc. small appliances	30	30	45	45	65	65	75	80	95	105
Engine Heaters	195	195	195	195	195	195	195	195	195	195
Hot Tub	360	360	360	360	360	360	360	360	360	360

1/ If more than one of these appliances are present in a quarters unit, multiply the KwH consumption times the number of appliances to determine the total KwH consumed for each appliance category.

NOTE: FOR APPLIANCES OPERATED BY FOSSIL FUELS, SEE TABLE 16a.

TABLE 16a MONTHLY FOSSIL FUEL CONSUMPTION: APPLIANCES AND EQUIPMENT

Gross Square Feet of Living Space

Appliance/ Equipment	Under 301	301-500	501-700	701-1,100	1,101-1,300	1,301-1,500	1,501-1,900	1,901-2,100	2,101-2,500	Over 2,500
Hot water heater										
Natural Gas MCF	.55	.55	1.05	1.05	1.58	1.58	2.05	2.05	2.56	3.01
Propane Gallons	5.61	5.61	10.71	10.71	16.12	16.12	20.91	20.91	26.11	30.70
Fuel oil Gallons	3.87	3.87	7.39	7.39	11.12	11.12	14.43	14.43	18.02	21.19
Kitchen Range										
Natural Gas MCF	.19	.21	.21	.21	.36	36	.36	.36	.36	.36
Propane Gallons	1.94	1.94	2.14	2.14	2.35	2.35	2.65	2.65	2.86	3.06
Fuel oil Gallons	1.34	1.34	1.48	1.49	1.62	1.62	1.83	1.83	1.97	2.11
Refrigerator 1/										
Natural Gas MCF	.19	.21	.21	.21	.36	.36	.36	.36	.36	.36
Propane Gallons	1.94	2.14	2.14	2.14	3.67	3.67	3.67	3.67	3.67	3.67
Clothes dryer										
Natural Gas MCF	.06	.06	.11	.11	.15	.15	.15	.15	.17	.21
Propane Gallons	.61	.61	1.12	1.12	1.53	1.53	1.53	1.53	1.73	2.14
Freezer 1/										
Natural Gas MCF	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
Propane Gallons	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06	3.06
Space heater (portable) 1/										
Natural Gas MCF	.55	.55	.55	.55	.55	.55	.55	.55	.55	.55
Propane Gallons	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61	5.61
Fuel oil Gallons	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87	3.87

1/ If more than one of these appliances are present in a quarters unit, multiply the consumption times the number of appliances to determine the total consumed for each appliance category.

NOTE: To compute the cost per month for an appliance that is fueled by a fossil fuel, multiply the consumption listed by the unit cost found in Table 17 of this report.

G. WATER AND SEWER CONSUMPTION/COST CALCULATIONS

In accordance with OMB Circular No. A-45 and Departmental policies and guidelines, when utilities are furnished by the Government, charges shall be based upon regional average residential rates and consumption levels applicable to private rental housing in the survey region.

Where regional survey procedures are used to establish base rental rates, *the charges for Government-furnished water and sewer services, must be based upon regional average water and sewer rates*, and *not* the rates prevailing in the nearest Established Community. In determining the regional average rates, the water and sewer rates for each survey community were obtained and averaged.

Thus, where the water service is unmetered, and where the Government furnishes water and sewer services, *including well water and septic waste disposal systems*, the regional average flat rate charges, shown below, shall be used. These charges are based upon (1) the average of the monthly service costs (including taxes, service charges, etc.) in all surveyed communities; and (2) consumption levels (based on numbers of bedrooms) contained in planning guides published by the Department of Housing and Urban Development (HUD). The rates below are based upon the number of bedrooms contained in a dwelling.

Flat Rate Water and Sewer Charges

Number of Bedrooms	Monthly Charges			Total
1 (or less)	$16.80 water	+	$26.40 sewer	= $43.20
2	$19.00 water	+	$28.00 sewer	= $47.00
3	$22.50 water	+	$29.25 sewer	= $51.75
4	$25.00 water	+	$31.00 sewer	= $56.00

H. GOVERNMENT PROVIDED METERED UTILITIES

Where the Government provides the utilities, and the consumption is metered *at the quarters unit level*, the following unit charges will apply.

TABLE 17 UTILITY CHARGES (COST PER UNIT)

Do not calculate the total cost of electricity in steps, such as the first 500 KwH costs so much, then the second 500 KwH costs so much, etc.

a. Electricity

KwH Consumed Per Month	Charge Per KwH
0 - 500	$.071
501 - 1,000	$.064
1,001 - 1,500	$.062
Over - 1,500	$.061

b. Fuel Oil #2 — $1.49 Per Gallon.

c. Propane — $1.67 Per Gallon.

d. Natural Gas — $8.74 Per MCF (1,000 cubic feet).

e. Water

Water Consumed Per Month	Cost Per Gallon
1 – 3,000 Gallons	$0.0056
3,001 - 5,000 Gallons	$0.0038
5,001 - 7,500 Gallons	$0.0030
Over - 7,500 Gallons	$0.0025

f. Sewer

Sewer Consumed Per Month	Cost Per Gallon
1 - 3,000 Gallons	$0.0088
3,001 - 5,000 Gallons	$0.0056
5,001 - 7,500 Gallons	$0.0039
Over - 7,500 Gallons	$0.0031

I. GARBAGE/TRASH REMOVAL SERVICE RATES

In the case of garbage and trash hauling, as with other Government-provided services, OMB Circular No. A-45 requires the charges to be based upon the domestic rates for comparable services provided to occupants of private rental units in the survey area.

The garbage and trash services provided to quarters occupants vary from weekly to daily service. Establishment of a service charge based upon the service in the nearest established community may or may not reflect a similar level of service. Therefore, the charge for garbage and trash collection, when conducted by the Government, will, regardless of quarters type, be **$14.00 per quarters unit per month**.

J. CHARGES FOR APPLIANCES AND RELATED SERVICES

OMB Circular No. A-45 requires agencies to charge occupants of Government quarters for appliances, furnishings and services that the Government provides with the quarters. The charges for appliances, furnishings and services most typically provided by Federal agencies are found in Table 18. The monthly recapture cost of the items in Table 18 were determined from information gathered by contractors in the survey communities of all QMIS regions, and from special studies conducted by the Quarters Operations Office.

Agencies providing appliances, furnishings or services that are not included in Table 18 are responsible for establishing an appropriate monthly charge that reflects the private market value of the item(s) provided. In such cases, the agency or bureau should advise the Quarters Operations Office to ensure that subsequent regional survey reports include charges for all Government-provided appliances, furnishings and services.

TABLE 18 MONTHLY CHARGES FOR APPLIANCES & RELATED SERVICES

APPLIANCES		SERVICES AND FURNISHINGS	
Range (Gas / Electric) *	(+/-) $3.55	Storage Shed (Per Unit)	$2.50
Refrigerator *	(+/-) $3.25	Furniture (Per Room)	11.30
Clothes Washer	3.75	Swimming Pool	
Clothes Dryer	3.15	Private Pool	60.00
Dishwasher	3.10	Community Pool	20.00
Microwave Oven	1.35	Satellite Dish	18.75
Trash Compactor	3.55	Cable Television	24.25
Freezer	1.85	Premium Channel (Each)	16.30
Freezer (Community)	1.00	Maid Service	70.45
Window Air Conditioner		Lawncare (Per Mowing)	
Refrigerated Unit	4.00	Houses (Excluding Plexes)	20.90
Evaporative (Swamp) Unit	3.00	All Other Classes	10.45
Free Standing Stove	3.60	Snow Removal (Per Removal)	12.80
Fireplace Insert	4.30	Firewood (Per Cord)	131.80
Lawn Mower	3.70		
Hot Tub	32.65	ELECTRIC CREDITS	
		Well pump (0-1 Bedroom)	1.10
Community Laundry		Well pump (2 Bedrooms)	1.75
(Non-Coin Operated)		Well pump (3 Bedrooms)	2.50
Washer Only	1.85	Well pump (4+ Bedrooms)	3.40
Dryer Only	1.55		
Washer and Dryer	3.40	Sewer Lift Pump (0-1 Bedroom)	1.10
		Sewer Lift Pump (2 Bedrooms)	1.10
		Sewer Lift Pump (3 Bedrooms)	1.30
		Sewer Lift Pump (4+ Bedrooms)	1.75
ISOLATION ADJUSTMENT FACTOR	2.90	Base Radio	1.10
		Remote Control Relay	1.10
		Sump Pump	1.10
		Radon Mitigation Fan	10.35

** If the Government provides one range and refrigerator, no additions or deductions are made.*
If the Government does not provide a range or a refrigerator, deduct the amount shown above.

If the Government provides 2 or more ranges or refrigerators, add the amounts shown above for each appliance furnished in excess of one range and one refrigerator

VII. ADMINISTRATIVE ADJUSTMENTS

Once the MBRR is established, certain adjustments (e.g. for isolation and amenity deficiencies) are authorized by OMB Circular No. A-45. These administrative adjustments are established by OMB and are not derived from regional surveys conducted by the Quarters Operations Office.

The administrative adjustments contained in OMB Circular A-45, and described below, are not authorized for dormitories, bunkhouses, or transient quarters. This is because the rental rates for those housing classes are administratively established, through extensions of the principle of comparability, and are not based directly upon market comparability.

A. SITE AMENITY ADJUSTMENTS

Living conditions at some Government housing sites are not always the same as those found in the survey communities. In the communities surveyed, the amenities discussed below (and in OMB Circular A-45) are generally present and their contributory value is included in the contract rent and in the quarters MBRR's determined from the tables in this report. Thus, if any amenity listed below is present at the quarters site, no positive adjustment is made for that amenity because its presence has already accounted for in the MBRR. However, the lack of an amenity discussed below represents a less desirable condition that should be reflected as a **negative** percentage adjustment to the quarters MBRR or CPI-adjusted MBRR (CPI-MBRR), whichever is applicable.

1. **Reliability and adequacy of water supply**. The water delivery system at the quarters site should provide potable water (free of significant discoloration or odor) at adequate pressure at usual outlets. If the water delivery system at the quarters site does not meet these conditions, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

2. **Reliability and adequacy of electric service**. Electric service at the quarters site must equal or exceed a 100-ampere power system, and should provide 24-hour service under **normal** conditions. When evaluating the electric service, housing managers are reminded that OMB Circular A-45 recognizes that occasional temporary power outages are considered to be "**normal**" conditions. Furthermore, if an adequate back-up generator is available, then the electric service amenity will be considered to be reliable and adequate regardless of the reliability of the primary power source. When electric service is inadequate and unreliable, 3 percent should be deducted from the MBRR or CPI-MBRR whichever is applicable.

3. **Reliability and adequacy of fuel for heating, cooling and cooking.** There should be sufficient fuel storage capacity to meet prevailing weather conditions and needs. Where electricity is used as the heating, cooling or cooking "fuel," an adjustment can only be made when a deduction has been made for deficient electric service (see paragraph VII.A.2, above). If the fuel delivery/storage system is inadequate, 3 percent should be deducted from the MBRR or the CPI-MBRR, whichever is applicable.

4. **Reliability and adequacy of police protection**. Law enforcement personnel, including Government employees with law enforcement authority, should be available on a 24-hour basis. OMB Circular A-45 defines "**availability**" as the ability of law enforcement officers to respond to

emergencies at the quarters site as quickly as a law enforcement officer in the nearest established community could respond to an emergency in the nearest established community.

OMB Circular A-45 further provides that where part-time officers serve the quarters site, the fact that the officers are part-time does not necessarily mean that they are less available than officers in the nearest established community. The important point is that the availability determination must be based on comparative response times (quarters site vs. the nearest established community) - not the employment conditions of the officers serving the quarters site.

Finally, OMB Circular A-45 provides that gaps in availability due to temporary illness or injury, use of annual leave, temporary duties, training, or other short absences, do not render law enforcement personnel "unavailable" at the quarters site.

If, after applying these guidelines, it is determined that the law enforcement protection at the quarters site is unreliable and inadequate in comparison to the reliability and adequacy of law enforcement protection in the nearest established community, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

5. **Fire insurance availability or reliability and adequacy of fire protection**. Fire insurance should be available (for the quarters) with the premium charge based upon a rating equal to the rating available to comparable housing located in the nearest established community. Alternatively, adequate equipment, an adequate supply of water (or fire retardant chemical), and trained personnel should be available on a 24-hour basis to meet foreseeable emergencies. OMB Circular A-45 provides that **if either element is present (adequate insurance or an adequate fire fighting capability), no adjustment is authorized**. If both elements are missing, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

6. **Reliability and adequacy of sanitation service**. An adequately functioning sewage disposal system and a solid waste disposal system should be available. OMB Circular A-45 considers septic, cesspool or other systems adequate even though they may require periodic maintenance, as long as they are usable during periods of occupancy. If the sanitation service at the quarters site is unreliable or inadequate, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

7. **Reliability and adequacy of telephone service**. Access to commercial telephone facilities should be available on a 24-hour basis. Deductions (except as provided below) are not allowed for occasional temporary interruptions of telephone service. OMB Circular A-45 allows specific deductions for various levels of service and privacy. These are explained below.

   a. The MBRR or CPI-MBRR (whichever is applicable) should be reduced by 3 percent if telephone service is not available within the quarters or within 100 yards of the quarters.

   b. The MBRR or CPI-MBRR (whichever is applicable) should be reduced by 2 percent if there is no telephone service within the quarters, but telephone service (either private or party line) is available within 100 yards of the quarters.

c. The MBRR or CPI-MBRR (whichever is applicable) should be reduced by 1 percent if telephone service is available in the employee's quarters, but the service is not private line service and/or the service is not accessible on a 24-hour per day basis.

8. **Noise and odors**. If there are frequent disturbing or offensive noises and/or odors at the quarters site, 3 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

9. **Miscellaneous improvements**. One or more of the following improvements should be available at the quarters site: paved roads/streets, sidewalks or street lights. If any one of these improvements is present, no deduction is authorized. If all three of these improvements are missing (i.e., there are no paved roads/streets **and** there are no sidewalks, **and** there are no street lights), 1 percent should be deducted from the MBRR or CPI-MBRR, whichever is applicable.

B. ISOLATION ADJUSTMENT

In some cases, Government quarters are located far from the nearest established community (see paragraph IX.C for the OMB's definition of "established community"). In addition, different modes of transportation (travel categories) may serve to further isolate the quarters from the nearest established community. In situations where the quarters location and the travel categories meet the requirements contained in OMB Circular A-45, an isolation adjustment should be applied. To determine whether an isolation adjustment applies, and the amount of the adjustment (if one does apply), you should follow the steps in the Isolation Adjustment Computation Schedule, shown on the following page. This schedule is a (modified) reproduction of the appendix to OMB Circular A-45, and is included in this report for illustrative purposes, only. Therefore, you should use the form prescribed by your agency or bureau when documenting the isolation adjustment.

Isolation Adjustment Computation

- *Step 1.* Determine the one-way distance in miles (from the quarters to the nearest established community) for each category of transportation listed in Figure 1. Enter mileage(s) in the appropriated block(s) under Column B.

- *Step 2.* Multiply mileage figures entered in Column B by point values listed in Column A for each affected category of transportation to produce one-way points for each category. Add 29 points to the category 4 subtotal and 27 points to the category 5 subtotal to reflect relative differences in cost or time by use of these modes of travel.

- *Step 3.* Add all categories of one-way points in Column C to produce one-way points. (The total must exceed 30 points or there is no adjustment for isolation.)

Figure 1

Category of Travel	Column A Point Value		Column B One-way Miles			Column C One-way Points
(1) Paved road or rail	1.0	X	____	=		____
(2) Unpaved but improved road	1.5	X	____	=		____
(3) Unimproved road	2.0	X	____	=		____
(4) Water, snowmobile, pack animal, foot or other special purpose conveyance	2.5	X	____	=	____+29	____
(5) Air	4.0	X	____	=	____+27	____
TOTAL ONE-WAY POINTS				=		____

- *Step 4.* Calculate the Isolation Adjustment Factor (IAF) using the following OMB formula: Multiply 2 (to reflect round-trip points) by 4 (to reflect number of trips per month) and then multiply by $x.xx (GSA's current automobile allowance as of the last day of September of each year). For example, the GSA mileage allowance, as of September 30, 2002, was $0.365 per mile, resulting in a IAF of 2.90.

ISOLATION ADJUSTMENT FACTOR = 2.90

- *Step 5.* Multiply total adjusted points by the Isolation Adjustment Factor to produce the monthly adjustment for isolation (rounded to the nearest whole dollar).

MONTHLY ADJUSTMENT = _____

C. LOSS OF PRIVACY

Some quarters occupants are subject to a loss of privacy during non-duty hours by virtue of **public visits which occur several times daily**. In other cases, quarters occupants may be **inhibited from enjoying the full range of activities normally associated with living in private rental housing** (such as where restrictions are imposed on activities in quarters at national cemeteries, or where quarters are in view of prison inmates). In such cases, OMB Circular A-45 allows a deduction from the MBRR or CPI-MBRR (whichever is applicable) of up to 10 percent. OMB Circular A-45 instructs housing managers to establish proportional adjustments to reflect situations of less frequency or seriousness in their impact upon privacy or usage, or to reflect seasonal variations.

D. EXCESSIVE OR INADEQUATE SIZE

Quarters occupants are sometimes provided dwellings that are excessively large or small for their needs. This may be because the range and variety of quarters available at an installation may be much less than that which is available in private rental markets. In such cases, OMB Circular A-45 allows a deduction from the MBRR or the CPI-MBRR (whichever is applicable) of up to 10 percent. The Circular instructs that the deduction should be in direct proportion to the degree of excess or inadequacy, and that the deduction must not continue beyond one month after suitable quarters are made available. Before this adjustment is applied, local housing managers should consult with managers within their agencies or bureaus to determine whether other alternatives (such as closing off rooms and other excess space) would offer a more suitable means of adjustment.

E. LIMITATIONS TO ADMINISTRATIVE ADJUSTMENTS

Administrative adjustments cannot be applied without limit. OMB Circular A-45 provides that the MBRR or CPI-MBRR cannot be reduced by more than 50 percent unless an isolation is authorized and applied. For quarters which receive an isolation adjustment, the MBRR or CPI-MBRR may not be reduced by more than 60 percent. These limitations do not apply to excessive heating or cooling adjustments, which are described in paragraph IX.A of this report.

VIII. CONSUMER PRICE INDEX ADJUSTMENTS

OMB Circular A-45 requires annual verification, and adjustment (when necessary) of the following rental components that are presented in this report: (1) the Monthly Base Rental Rates (MBRR's); (2) the charges for related facilities (utilities, appliances, furnishings and services); and (3) the Isolation Adjustment Factor (IAF). These verifications and adjustments are to be made, essentially, in each interim year between baseline regional surveys.

Generally, OMB Circular A-45 specifies that these changes are to be based upon September index levels of specified components of the Consumer Price Index (CPI); and the GSA temporary duty mileage allowance in effect as of September 30, of each year. These changes must be implemented at the beginning of the first pay period in March of each following year.

The Quarters Operations Office is responsible for determining the amounts of these changes, and for providing QMIS Program participants with the information, the software and the instructions needed to implement the required changes. This information is usually distributed to each National Quarters Officer in November of each year. National, regional or installation quarters managers (as required by your agency or bureau) are responsible for implementing these annual rental adjustments.

IX. OTHER OMB CIRCULAR A-45 RENT CONSIDERATIONS

A. EXCESSIVE HEATING OR COOLING COSTS

OMB Circular A-45 authorizes a deduction from the Monthly Base Rental Rate (MBRR) or the Consumer Price Index - adjusted Monthly Base Rental Rate (CPI-MBRR), whichever is applicable, when quarters are unusually costly to heat or cool. This adjustment is allowed only when (1) the excessive heating or cooling costs are due to the poor design of the quarters or the lack of adequate insulation/weather-proofing; and (2) when the energy/fuel used for heating and/or cooling is metered. This adjustment will vary from quarters-to-quarters, but is the difference between the actual heating and/or cooling costs paid by the quarters occupant and 125 percent of the cost of heating and/or cooling a comparable (but adequately constructed and insulated) dwelling located in the same climate zone. For more information on this adjustment, you should consult your agency or bureau policies.

B. INCREMENTAL ADJUSTMENTS

New baseline regional surveys or annual CPI adjustments may occasionally increase quarters rents by more than 25 percent. When this occurs, OMB Circular A-45 allows housing managers to impose the increase incrementally over a period of not more than one year. The Circular also requires that such increases must be applied in equal increments on at least a quarterly basis.

C. ESTABLISHED COMMUNITY

OMB Circular A-45 has established the following minimum standards for use in determining which population centers (cities, towns, etc.) may be used as "established communities" when determining quarters rents.

1. An established community must have a year-round population of 1,500 or more (5,000 or more in Alaska). The population determinations must be based upon the most recently conducted decennial census.

2. An established community must have at least one doctor and one dentist, who are available to all quarters occupants on a non-emergency basis.

3. An established community must have a private rental market with housing available to the general public. This requirement excludes communities on military posts, Indian reservations and other Government installations which may meet the other criteria contained in paragraphs IX.C.1 and 2, above.